International Journal of
Advanced Studies in Economics and Public Sector Management
Hard Print: 2354-421X Online: 2354-4228

January, 2017

Vol. 5, No. 1

Government Expenditure and Human Capital Development in Nigeria: an Auto-Regressive Distributed Lagged Model Approach (ARDL)

[1]Kairo Chinonso Innocent, [2]Mang Niri Job, [3]Okeke, Augustine & [4]Aondo, Dura Christopher

[123&4]Department of Banking and Finance,
Faculty of Management Sciences, University of Jos

Abstract

The concept of human capital refers to the abilities and skills of human resources of a country, while human capital development refers to the process of acquiring and increasing the number of persons who have the skills, education and experience that are critical for economic growth. This study empirically studied the relationship between human capital development and government expenditure. Data were collected over the period 1990-2014. ARDL and impulse response function were adopted for the estimation. The Bound Test was used to determine that a long run relationship exists between HDI and GOVEXP. The results demonstrated that both in the long and short run, government spending has remained positive but to a very large extent insignificant to human capital development in Nigeria. This is why Nigeria's per capita income has remained low for a long time in the world ranking. This study therefore strongly recommends that government spending should largely be focused on human development through specialized high technology-driven schools and efficient and effective health facilities.

Keywords:
Human capital development, Government expenditure, Human Development Index (HDI), Cointegration, Bounds test, Impulse response Function, Nigeria.

Corresponding Author:
Kairo Chinonso Innocent

Background to the Study

There are several studies in Nigeria, such as;Ohwofasa, Obeh, and Atumah (2012), Torruam and Abur, (2014), Nwaeze, Njoku and Nwaeze (2014), Aremu, Babalola, Aninkan, and Salako (2015), Anyanwu, Adam, Obi, and Yelwa (2015), Iganiga and Obafemi (n.d) and abroad, Gebrehiwot (2015)that have carried out investigations on impact of government expenditure on economic growth. However, in all of these studies, none has empirically and specifically examined the long-run and short-run relationship of government expenditure on human capital development. It is on this premise that this study seeks to investigate the relevance of human capital development and its multiplier effect on economic growth.

Literature

Conceptual Framework: Human Capital Development

The concept of human capital refers to the abilities and skills of human resources of a country, while human capital development refers to the process of acquiring and increasing the number of persons who have the skills, education and experience that are critical for economic growth and development an economy (Okojie, 2005).

Human capital consists of knowledge, skills or competencies and abilities of the workforce. Human beings is the only factor of production among others, that is capable of learning, adapting or changing, innovative and creative (Lyakurwa, 2007; Ejere, 2011). Human capital formation or development, according to Harbison (1973), is the deliberate and continuous process of acquiring requisite knowledge, skills and experiences that are applied to produce economic value for driving sustainable national development. The significance and relevance of human capital development in the achievement of meaningful and sustainable economic growth and development have been widely acknowledged some literatures such as Iganiga and Obafemi (n.d). They stated that in the absence of substantial investment in the development of human capital in any country, sustained economic growth and development would only be a mere wish, never a reality.

Jhingan (2005) stated that economic growth cannot take place without the importance human capital. He aggregated human capital development as education or schooling, training and health care delivery. These aggregation of human resource development can further increase productivity, income, improve health and fitness, good habits in individuals such as being trustworthy and responsible. Therefore, education and training are the most important factors in human resource development.

Scholars like Todaro, Smith and Jhingha often use the term human capital for education, health and other human capabilities that can enhance productivity (Todaro and Smith, 2006). Thus, the quality of human resources connotes the state of education, health and other human capabilities that can raise productivity when increased.

The concept of this present study is according to the Human Development Report, (1990), human development 'is about more than GNP growth, more than producing commodities, and accumulating capital' which is only a means of enlarging people's choices. It is about creating an environment in which people can develop their full potential and lead productive, creative lives in accordance with their needs and interests. People are the real wealth of nations. Development is thus about expanding the choices people have to lead lives that they value.

According to Gallardo (2009) Human Development Index (HDI) is the creation of an enabling environment in which people can develop their full potential and live productive and creative lives according with their needs, interests and own values. In this sense, human development paradigm promotes well-being in a society. Even though human development is a broad concept with infinite dimensions, it is said that at all levels of development, there are three basic ones: a long and healthy life, access to knowledge, and a decent standard of living. Without these basic dimensions, other dimensions such as political freedom, the ability to participate in one's community, self-respect and so on will often remain inaccessible.

Measurement of Human Capital

Measuring human development is a concept with many facets and complexities. This suggested that any index of human progress incorporates a range of indicators to capture these complexities. This index focuses in the three basic dimensions mentioned above using four basic indicators: (1) life expectancy at birth, as a proxy measure of a population's health and longevity; (2) adult literacy rate and combined gross enrolment ratio, as measure of knowledge and education; Finally, (3) GDP per capita at purchasing power parity (PPP) as measure of a decent standard of living (Gallardo, 2009).

According to Gallardo, (2009), there are conventional standard to measure human capital stock which are categorized into three parts: Output-, Cost-, and Income-based approach. School enrollment rates, scholastic attainments, adult literacy, and average years of schooling are the examples of output-based approach; cost-based approach is calculating costs paid for obtaining knowledge; and income-based approach is closely linked to each individual's benefits obtained by education and training investment. However, in recent study by Hansson (2008) showed that Organization for Economic Corporation and Development (OECD) measurement on human capital is closely linked to international comparable statistics considering investment in human capital, quality adjustments, and result of education. The new approach of human capital measurement partially needs to accept the conceptual framework of Human Development is Human Development Index (HDI). The structure of the index is constituted to health, knowledge, and standard living with many sub-variables such as life expectancy at birth, adult literacy rate, gross enrollment ratio, and GDP per capita. Considering that the HDI index includes quality aspects, the approach of HDI focuses on all of individuals' life quality and economic situation. Furthermore, International Labour Office (ILO) utilizes the similar index considering the quality aspects such as the Key Indicators of the Labour Market (KILM).

Government Expenditure

The role of any government is protective functions, welfare functions and provision of social services. The ability to achieve these roles require huge amount of resource which are expended. In recent times, the volume of public spending has been increasing in Nigeria since the military regime at the slower rate relative to what is obtainable in the current civilian régime. Government Expenditures are the expenses which a government incurs for (i) its own maintenance (ii) society and the economy (iii) helping other countries (Bhatia 2002). Public Expenditure represents the total government spending to attain the predetermined macro-economic objectives. Governments have recorded a continuous increase over time in almost every sector.

According to Jhingan (2007) government expenditure policy involves decisions which influence the flow of funds from government into private economy with the view of achieving economic stability, employment generation and economic growth. It is expedient to determine the effect of government expenditure on the adjudged critical sectors of the economy especially in the education, health and administration, as they constitute the human capital development in Nigeria.

Theoretical Framework

Musgrave theory of Public Expenditure

The Musgrave theory of public expenditure postulated in 1969 is the pivot of this study. The theory postulated that at low levels of per capita income, demand for public services tends to be very low, this is so because according to him such income is devoted to satisfying primary needs (Musgrave, 1969). Also, that when per capita income starts to rise above these levels of low income, the demand for services supplied by the public sector such as health, education and transport starts to rise, thereby forcing government to increase expenditure on them. Consequently, that at the high levels of per capita income, typical of developed economies, the rate of public sector growth tends to fall as the more basic wants are being satisfied. This theory specifically related government expenditure and human capital development by spending on health and education which are core to human capital development. Other theories that relating to government expenditure but not to human capital are, Wagner's theory of Public Expenditure, Peacock Wiseman theory and Keynesian Theory(Efobi & Osabuohien, 2012).

Empirical Review

The following are the review of some of the empirical literature in relationship to this study. The study by Ohwofasa, Obeh, and Atumah (2012) on impact of government expenditure in education on economic growth in Nigeria, 1986-2011: a parsimonious error correction model is the closest to the relationship between human capital development and government expenditure, however, the methodology indicated that it measured the relationship between government expenditure and economic growth in Nigeria. This study should have stated two different model for the relationship between: education and government expenditure; and economic growth and government expenditure. However, it stated only one model. The study employs Johasen co-integration technique and error correction method. The co-integration result showed that long run relationship exists between the variables. The econometric results further indicated that a one year lag of gross domestic product, current level of recurrent expenditure on education, two year lags of recurrent expenditure on education, current as well as two year lags of gross capital formation exhibit positive impact on economic growth in Nigeria. On the other hand, previous year capital expenditure on education and human capital development has negative and significant impact on economic growth within the period, 1986-2011.

Torruam and A Bur (2014) in their study public expenditure on human capital development as a strategy for economic growth in Nigeria: application of Co Integration and Causality Test Analysis. The study investigated the impact of human capital development on economic growth in Nigeria. The study examines the causal relationship between human capital development and economic growth in Nigeria for the period 1977-2012. The stationarity

properties of the data and the order of integration of the data were tested using both the Augmented Dickey-Fuller (ADF) test and the Phillip-Perron (PP) test. The variables tested stationary at first differences. The Johansen approach of co-integration was applied to test for the long-run relationship among the variables. The result indicated three (3) co-integrating relations between the variables; the Granger-causality suggested that there is bidirectional causality running from economic growth to human capital development and from total expenditure on education to total expenditure on health in Nigeria. The study concludes that human capital development has an impact on economic growth in Nigeria. This implies that if funds channelled into education and health sectors are properly managed and utilized efficiently it would improve the educational and health sectors. However, this study only focused on the relationship between public expenditure and economic growth and not really on how public expenditure impact on human capital development. This study did not empirically examine the long run and short run relationships.

Nwaeze, Njoku and Nwaeze (2014), investigated the impact of government expenditure on Nigeria's economic growth (1992 – 2011). They stated that public expenditure on investments and productive activities is expected to accelerate the pace and level of economic activities in the economy, thus leading to higher levels of production and growth. This study examined the nature and impact of Federal Government Expenditure on Nigeria's economic growth for the period 1992 – 2011. Time series data for the twenty year period were sourced from secondary sources and Ordinary Least Square (OLS) multiple regression technique was used to estimate the hypothesis formulated in line with the objectives of this study. Real Gross Domestic Product, proxy for economic growth is adopted as the dependent variable while Total Recurrent Expenditure and Total Capital Expenditure constitute the independent variables. The results of this study show that the Federal Government Expenditure has a positive and insignificant impact on the economic growth of Nigeria for the period under study. However, this study only focused on the relationship between public expenditure and economic growth and not really on public expenditure on human capital development. This study also did not examine the long run and short run relationships. The data being time series did not test for unit root and cointergration, hence, a spurious result.

Aremu, Babalola, Aninkan, and Salako (2015), examined the analysis of impact of sectoral government expenditures on economic growth in Nigeria: Bound Test Co-integration Approach. This study empirically investigated the impact of government expenditures on critical sectors on economic growth in Nigeria (1984-2013). With the purpose of determining to what extent the government expenditures on these sectors are contributing to the achievement of growth objective. The study employs quantitative analysis by the use of Auto-Regressive Distributed Lag model (Bound Test Co-integration Approach) to determine both short-run and long run impact of Government expenditures on economic growth. The specific ARDL estimates of the analysis reveals that government expenditure on defence retards the economic growth and government expenditure on agriculture promote the economic growth while government expenditure on education and transport/communication have no impact on economic growth in the long-run. In the short run, none of the government expenditure on these sectors contributes to the growth objective. This study also did not critically and specifically examined the long run and short run relationships of government expenditure on human capital development. It did not run unit root test to tell whether the result are cointegrated of I(0) and I(1). The study conducted an ARCH analysis which is only suitable for volatile variables.

Gebrehiwot (2015), studied the impact of human capital development on economic growth in Ethiopia: evidence from ARDL approach to co-integration. The finding of this research showed that there is a stable long run relationship between real GDP per capita, education human capital, health human capital, labour force, gross capital formation, government expenditure and official development assistance. The estimated long run model indicates that human capital in the form of health have big positive impact on real GDP per capita rise followed by education in human capital. The study also did not critical and specifically examined the long run and short run relationships of government expenditure on human capital development.

Anyanwu, Adam, Obi, and Yelwa (2015), viewed human capital development and economic growth in Nigeria. The study investigated the relationship between human capital and economic growth in Nigeria with time series data which covers periods 1981-2010. Adopting the endogenous modeling approach cast within the autoregressive distributed lag (ARDL) framework, the bounds testing analysis indicated existence of co integration between economic growth and human capital development indicators. The result showed that human capital development indicators had positive impact on economic growth in Nigeria within the reviewed periods.This study also did not critically and specifically examined the long run and short run relationships of government expenditure on human capital development. The study though published in 2015, has a time lag of 4 years and thus does not reflect the current effect of the relationship between government expenditure and economic growth in Nigeria.

Methodology

Data

This study adopted the Autoregressive Distributed Lagged Model (ARDL) and the Impulse Response Function (IRF) to empirically examine this relationship. Time series data was collected from 1990 to 2015 from the Central Bank of Nigeria (CBN) of various issues and the United Nations Website. The justification for the choice of date 1990 was because this period marks the beginning of the measure and significance of Human Capital Development.

Variables for this Study

Dependent Variable

Human Capital Development (HCD) the proxy used to measure human capital development is Human Development Index (HDI). HDI Put simply, the starting point for the human development approach was the idea that the purpose of development is to improve human lives by not only enhancing income but also expanding the range of things that a person can be and do, such as to be healthy and well nourished, to be knowledgeable, and to participate in community life. Seen from this viewpoint, development is about removing the obstacles to what a person can do in life, obstacles such as lack of income, illiteracy, ill health, lack of access to resources, or lack of civil and political freedoms.Human Development Index is the simple average of three indices: Income per capita (or GDP) index, Life Expectancy Index and Education Index.

Independent Variable

GovExp government expenditure. For the purpose of this study, the government expenditure is limited to expenditure on health, education and salaries. Expenditure on health covers for treatment for health related issues, on education to take care of illiteracy rate and salaries to empower citizen income.

Model Specification

The following are the assumptions of ARDL

1. It is expected that all of the series are I(0), and hence stationary. In this case, we can simply model the data in their levels, using OLS estimation, for example.
2. It is expected that all of the series are integrated of the same order (*e.g.*, I(1)), but they are *not* cointegrated. In this case, it can just (appropriately) difference each series, and estimate a standard regression model using OLS.
3. It is expected that all of the series are integrated of the same order, and they *are cointegrated*. In this case, it can estimate two types of models: (i) An OLS regression model using the *levels* of the data. This will provide the long-run equilibrating relationship between the variables. (ii) An error-correction model (ECM), estimated by OLS. This model will represent the short-run dynamics of the relationship between the variables (Pesaran& Shin,1999; Pesaran, Shin, & Smith,2001).

The basic form of an ARDL regression model is:

$$Y_t = \beta_o + \beta_1 Y_{t-1} + \ldots + \beta_k Y_{t-p} + \alpha_o X_t + \alpha_1 X_{t-1} + \alpha_2 X_{t-2} + \ldots + \alpha_q X_{t-q} + \varepsilon_t \ldots (1)$$

where ε_t is a random "disturbance" term.

Which becomes;

$$\Delta y_t = \beta_o + \Sigma\, \beta_i \Delta y_{t-i} + \Sigma \gamma_j \Delta x_{it-j} + \Sigma \delta_k \Delta x_{2t-k} + \phi z_{t-1} + e_t \quad \ldots (2)$$

For this study, since it is concerned with long-run and short-run relationships, the following unrestricted error correction model is formulated

$$\Delta \mathbf{HDI}_t = \beta_o + \Sigma\, \beta_i \Delta \mathbf{HDI}_{t-i} + \Sigma \gamma_j \Delta \mathbf{GovExp}_{t-j} + \theta_o \mathbf{HDI}_{t-1} + \theta_1 \mathbf{GovExp}_{t-1} + \phi z_{t-1+} e_t \ \ldots (3)$$

Where:

$\Delta \mathbf{HDI}_t$ = Differenced Human Development Index in time t

$\Delta \mathbf{HDI}_{t-I}$ = Differenced Human Development Index in time t-i

$\Delta \mathbf{GovExp}_{t-j}$ = differenced Government Expenditure in time t-j

$\mathbf{HDI}_{t-1}$ = One year lagged humane development index

$\mathbf{GovExp}_{t-1}$ = one year lagged Government expenditure

e_t = error term

IV. Results and Findings

Table 1: KPSS Unit root Test

Variables	Level of stationarity	Level of significance 0.05
HDI	*I*(1) 0.3307	0.463
GovEXP	*I*(0) 0.2886	0.463

Source: Author's Computation

The Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test statistic shows that the value at 0.05 which is 0.463 is greater than the stationary value. The results showed that HDI and GOVEXP are I(1) and I(0). This means that the mixture of both I(0) and I(1) variables would not be possible under the Johansen procedure. This gives a good justification for using the bounds test approach, or ARDL model, which was proposed by Pesaran et al (2001).

Bound Test

Applying Bounds test to this study requires that ARDL model must be used for the estimation of level relationships because the model suggests that once the order of the ARDL has been recognised, the relationship can be estimated by OLS. Second, the bounds test allows a mixture of I(1) and I(0) variables as regressors, that is, the order of integration of appropriate variables may not necessarily be the same. Third, this technique is suitable for small or finite sample size (Pesaran et al., 2001).

The following hypothesis is formulated to determine the long-run relationship between the variable

$H_0 = \beta_1 = \beta_2 = \beta_3 = 0$ (no long-run relationship)

Against the alternative hypothesis

$H_0 \neq \beta_1 \neq \beta_2 \neq \beta_3 \neq 0$ (a long-run relationship exists)

The computed *F*-statistic value will be evaluated with the critical values tabulated in Table CI (iii) of Pesaran*et al.* (2001). According to these authors, the lower bound critical values assumed that the explanatory variables x_t are integrated of order zero, or I(0), while the upper bound critical values assumed that x_t are integrated of order one, or I(1). Therefore, if the computed *F*-statistic is smaller than the lower bound value, then the null hypothesis is not rejected and it concludes that there is no long-run relationship between HDI and GOVEXP. Conversely, if the computed *F*-statistic is greater than the upper bound value, then HDI and GOVEXP share a long-run level relationship. On the other hand, if the computed *F*-statistic falls between the lower and upper bound values, then the results are inconclusive.

Model Selection and Lag Length

In order to overcome the problem of model selection and lag length selection Figure 1 shows that the Akaike Information Criterion was used with a maximum of 8 lags of both the dependent variable and the regressor. Out of the 20 models evaluated, the procedure has selected an ARDL (1, 0) model - 1 lag of the dependent variable, HDI, and a no lag (along with the level value) of GOVEXP.

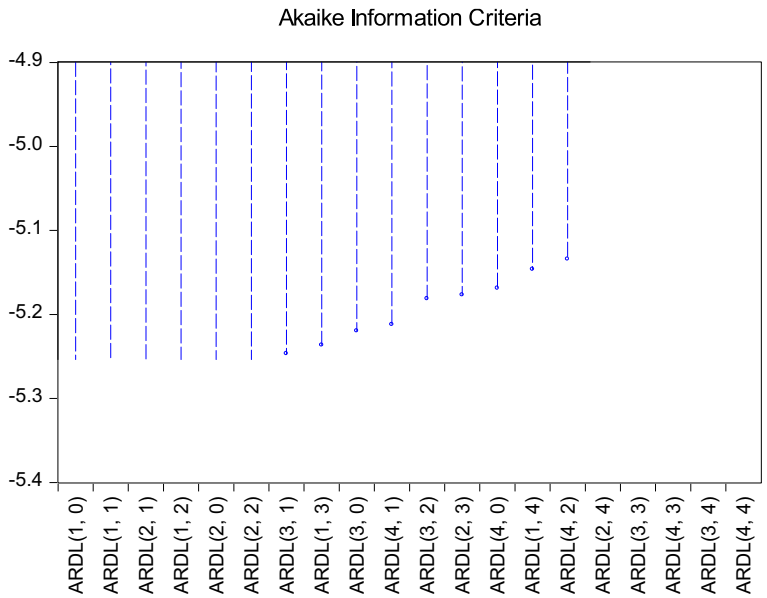

Figure 1: Akaike Information Criteria

Table 2: Bounds Test for Co-integration

ARDL Bounds Test
Date: 02/27/16 Time: 03:54
Sample: 1991 2014
Included observations: 24
Null Hypothesis: No long-run relationships exist

Test Statistic	Value	K
F-statistic	10.38314	1

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	4.04	4.78
5%	4.94	5.73
2.5%	5.77	6.68
1%	6.84	7.84

Table 2shows the results of the bounds co-integration test demonstrated that the null hypothesis of against its alternative is easily rejected at the 1% significance level. The computed *F*-statistic of 10.383 is greater than all the lower and upper critical bound valuesat 10%, 5%, 2.5% and 1% respectively, thus indicating the existence of a steady-state long-run relationship between HDI and GOVEXP.

Table 3: ARDL Estimation

Dependent Variable: HDI
Method: ARDL
Date: 02/27/16 Time: 04:05
Sample (adjusted): 1991 2014
Included observations: 24 after adjustments
Maximum dependent lags: 4 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (4 lags, automatic): GOVEXP
Fixed regressors: C
Number of models evalulated: 20
Selected Model: ARDL(1, 0)
Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
HDI(-1)	0.687600	0.062850	10.94039	0.0000
GOVEXP	8.83E-13	4.01E-13	2.203692	0.0388
C	0.142687	0.026869	5.310479	0.0000

R-squared	0.867141	Mean dependent var	0.437167
Adjusted R-squared	0.854488	S.D. dependent var	0.042956
S.E. of regression	0.016386	Akaike info criterion	-5.268326
Sum squared resid	0.005638	Schwarz criterion	-5.121069
Log likelihood	66.21991	Hannan-Quinn criter.	-5.229259
F-statistic	68.53138	Durbin-Watson stat	2.247621
Prob(F-statistic)	0.000000		

Table 4: ARDL Cointegrating And Long Run Form

ARDL Cointegrating And Long Run Form
Dependent Variable: HDI
Selected Model: ARDL(1, 0)
Date: 11/09/16 Time: 19:47
Sample: 1990 2014
Included observations: 24

Cointegrating Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GOVEXP_IN_BILLI ON_NAIRA)	0.000000	0.000000	2.203692	0.0388
CointEq(-1)	-0.312400	0.062850	-4.970591	0.0001

Cointeq = HDI - (0.0000*GOVEXP_IN_BILLION_NAIRA + 0.4567)

Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GOVEXP_IN_BILLION _NAIRA	0.000000	0.000000	2.158298	0.0426
C	0.456744	0.012764	35.784321	0.0000

From the ARDL model in Tables 3 and 4,the result is reported as follows the goodness of fit of the specification, that is, *R*-squared and adjusted *R*-squared, areo.867 and 0.854 respectively. The robustness of the model was check by several diagnostic tests which include Breusch- Godfrey serial correlation LM test, Jacque-Bera normality test and heteroscedasticitytest (See Appndix A). All the tests indicated that the model has a correct functional form and the model's residuals are serially uncorrelated, normally distributed and homoskedastic. Therefore, the model is valid for reliable interpretation.

The value of the ECM approximately gave 31.2%, meaning that the disequilibrium is corrected (or adjusts to) its previous dis-equilibrium period at a speed of 31.2% in the following year. This indicates that the rate of adjustment is slow.

Table 5: Long-Run Effect of GOVEXP on HDI

Dependent Variable: HDI
Method: Least Squares
Date: 02/27/16 Time: 03:17
Sample: 1990 2014
Included observations: 25

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GOVEXP	1.83E-12	1.34E-12	1.361620	0.1865
C	0.426413	0.011401	37.40281	0.0000

R-squared	0.074596	Mean dependent var	0.429520
Adjusted R-squared	0.034361	S.D. dependent var	0.056834
S.E. of regression	0.055849	Akaike info criterion	-2.855714
Sum squared resid	0.071739	Schwarz criterion	-2.758204
Log likelihood	37.69643	Hannan-Quinn criter.	-2.828669
F-statistic	1.854009	Durbin-Watson stat	0.337858
Prob(F-statistic)	0.186508		

The result in Table 5 shows that long-run relationship between HDI and Government expenditure is a positive and insignificant. This implies that a one percent increase in Government Expenditure, will bring about 0.000000000000183 increasein HDI, indicating that government expenditure in the long run on human capital development has not really being significant and has never being the focus of the government in terms of tackling unemployment and technological advancement. This result is consistent with work of Anyanwu, Adam, Obi, and Yelwa (2015), who investigated the relationship between human capital and economic growth in Nigeria. The result showed that in the long-run majority of the human capital development indicatorshad positive impact on economic growth in Nigeria within the reviewed periods, however, their impacts werelargely statistically insignificant.

Table 6: Short-Run Effect of GOVEXP on HDI

Dependent Variable: D(HDI)
Method: Least Squares
Date: 02/27/16 Time: 03:18
Sample (adjusted): 1991 2014
Included observations: 24 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GOVEXP)	2.71E-13	3.98E-13	0.682146	0.5023
C	0.011167	0.004867	2.294559	0.0317

R-squared	0.020713	Mean dependent var	0.011167
Adjusted R-squared	-0.023800	S.D. dependent var	0.023562
S.E. of regression	0.023841	Akaike info criterion	-4.555149
Sum squared resid	0.012505	Schwarz criterion	-4.456978
Log likelihood	56.66179	Hannan-Quinn criter.	-4.529105
F-statistic	0.465324	Durbin-Watson stat	1.466331
Prob(F-statistic)	0.502266		

Consequently, the result in Table 5 shows that Short-run relationship between HDI and Government expenditure is also a positive and insignificant one. Implying that a one percent increase in Government Expenditure, will bring about 0.000000000000271 increase in HDI, indicating that government expenditure in the long run on human capital development has not really being significant and has never being the focus of the government in terms of tackling unemployment and technological advancement.

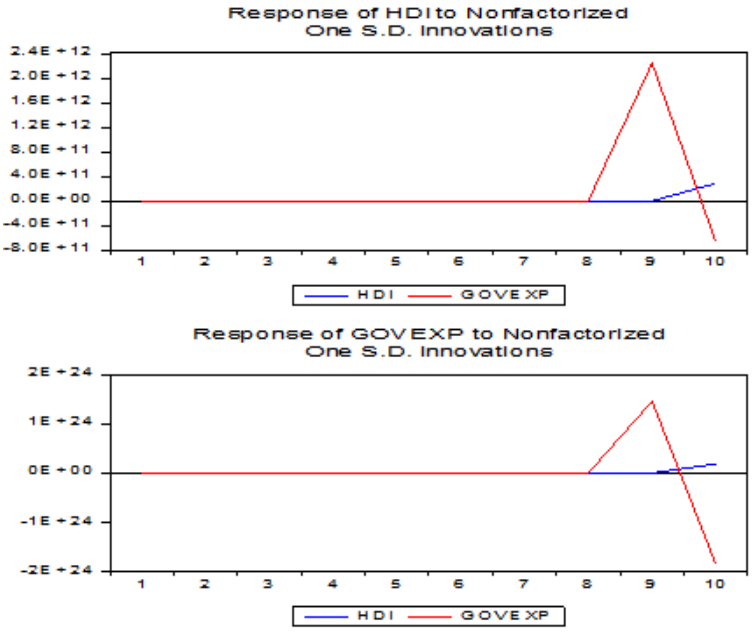

Figure 2: Impulse Response Function

Conclusion and Recommendation

This study empirically estimated the long-run and short-run relationship between government expenditure in Nigeria. Time series data from 1990-2014was collected and ARDL and impulse response function were used for the estimation. The Boundstest was used to determine that a long run relationship exists between HDI and GOVEXP. The results demonstrated that both in the long and short run, government spending has remained positive but to a very large extent insignificant to human capital development in Nigeria. This stated the reasons for the low per capita income low world ranking of Nigeria.

This study therefore strongly recommend that government spending should largely be focused on human development through specialized high technology-driven schools and efficient and effective health sector. Sponsor and motivate eligible individuals to acquire knowledge from highly developed societies and bring them back to teach the same technology in Nigeria so as to further expand and develop the economy through technology transfers. Finally, those who have started on their own to develop and improve themselves should be highly supported financially.

References

Aremu, Y.S., Babalola, B.T.A., Aninkan, O. D., & Salako, M. A. (2015). Analysis of impact of Sectoral Government expenditures on economic growth in Nigeria: Bound Test Co-integration. Approach. *European Journal of Business and Management*.7(12); 1-15.

Anyanwu, S.O., Adam, J. A., Obi, B., & Yelwa, M., (2015). Human capital development and economic growth in Nigeria. *Journal of Economics and Sustainable Development,* Vol.6 (14); 1-12.

Bhatia, H.L. (2002). *Public Finance, 25th Edition,* India: Vikas Publishing House.

Ohwofasa, B.O., Obeh, O., & Atumah, M. (2012). Impact of government expenditure in education on economic growth in Nigeria,1986-2011: A Parsimonious Error Correction Model. *African Journal of Scientific Research* Vol. 10 (1).

Efobi, U., & Osabuohien, S.E. (2012). Government expenditure in Nigeria: An Examination of Tri-Theoretical Mantras. *Journal of Economic and Social Research* 14(2); 27-52.

Ejere, S.I. (2011). Human capital formation as catalyst for national development: Nigeria in perspective. *International Business and Management*, 2(2); 98-104.

Gebrehiwot, K.G. (2015). The impact of human capital development on economic growth in Ethiopia: Evidence from ARDL Approach to Co-Integration. *Journal of Economics and Sustainable Development*.6(13); 1-15.

Gallardo, G. (2009). The human development index as an effort to measure well-being in Honduras. *The 3rd OECD World Forum on "Statistics, Knowledge and Policy. Charting Progress*, Building Visions, Improving Life.

Hanson, B. (2008). OECD Measures on Human Capital and Potential Use in Educational Accounts. *Workshop on the Measurement of Human Capital.*

Harbison, F.H. (1973). *Human resources as the Wealth of Nations*. New York: Oxford University Press.

Lyakurwa, W.M. (2007). *Human capital and technology for development. Lesson for Africa AfDB.*

Nwaeze, C., Njoku, R., & Nwaeze, O.P. (2014). *Impact of government expenditure on Nigeria's economic growth (1992 – 2011).* A multidisciplinary journal of global macro trends. *The Macrotheme Review* 3(7); 1-9.

Okojie, C.E.E (2005). Human Capital Formation for Productivity Growth in Nigeria. *Nigerian Economic and Financial Review:* 44-5.

Pesaran, H., & Shin, Y. (1999). *An autoregressive distributed Lag modeling approach to Co-integration Analysis*. England: Cambridge.

Pesaran, H., Shin, Y., & Smith, R. (2001). Bounds testing approaches to the analysis of Level relationships. *Journal of Applied Econometrics*, 16(3); 1924-1996.

Todara, M. P.,& Smith, S. C., (2006). *Economic Development, 9th Edition*. England: Pearson Educational Limited.

Torruam, J.T., &Abur, C.C. (2014). Public expenditure on human capital development as a strategy for economic growth in Nigeria: Application of Co Integration and Causality Test Analysis. *International Journal of Research in Humanities and Social Studies*Vol. 1 (2); 1-10.

Appendix A

Table 6: Serial Correlation

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.672735	Prob. F(2,19)	0.5221
Obs*R-squared	1.587147	Prob. Chi-Square(2)	0.4522

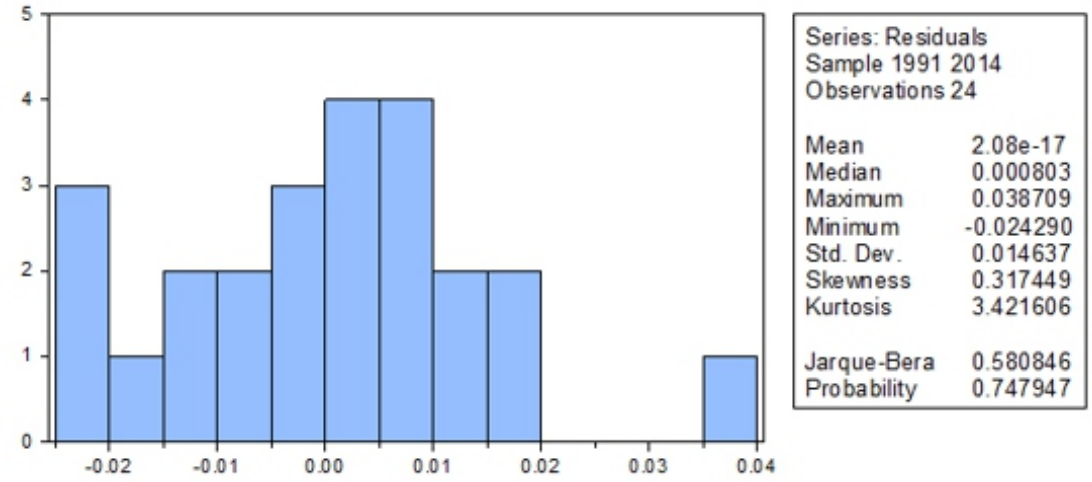

Figure 3: Normality test

Table 7: Heteroskedasticity Test

Heteroskedasticity Test: Breusch -Pagan-Godfrey

F-statistic	0.837811	Prob. F(2,21)	0.4466
Obs*R-squared	1.773488	Prob. Chi-Square(2)	0.4120
Scaled explained SS	1.295276	Prob. Chi-Square(2)	0.5233

APPENDIX B:

Table 8: Government Expenditure and Human Development Index (HDI) 1990-2014

YEAR	HDI	GOVEXP in Billion Naira
1990	0.246	60268.2
1991	0.328	66584.4
1992	0.348	92797.4
1993	0.400	191228.9
1994	0.393	160893.2
1995	0.391	248768.1
1996	0.400	337417.6
1997	0.456	428215.2
1998	0.439	487113.4
1999	0.455	947690
2000	0.462	701050.9
2001	0.463	1017996.5
2002	0.466	1018178.1
2003	0.453	1225988.3
2004	0.448	1461893.6
2005	0.429	1840699.99
2006	0.430	1942487.7
2007	0.437	2348551.012
2008	0.443	3078252.101
2009	0.449	3280762.872
2010	0.454	3993311.613
2011	0.459	4232984.446
2012	0.471	4199996.5
2013	0.504	42396766000
2014	0.514	5211420.695

Sources: CBN various issues and WHO, UNDP.