

Budget Deficits and Human Development in Nigeria: An Empirical Study

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Abstract: *Several countries of the world, developed and developing including Nigeria engage in deficit budgeting as a fiscal policy tool. This study empirically examines the causal relationship between budget deficits and human development in Nigeria for the period 1980 to 2013. Several debates and researches have been on the impact of budget deficits on the economy; some of the opinions and findings are aligned to the neoclassical economists' theory, some are aligned to the Ricardian Equivalence theory, and some are aligned to the Keynesian theory. This study utilizes endogenous lag models using the Keynesian model based on restricted vector autoregressive mechanism called vector error correction (VEC) model. This determines the causality between budget deficits and human development in Nigeria. Significance of Wald statistics and coefficients of error correction term are used to test the study's hypotheses. The study finds a unidirectional long-run causality existing between budget deficits and human development in Nigeria, with causality running from budget deficits to Human Development Index, aligning with the Keynesian views. The study recommends amongst others that in budget planning as an instrument for fiscal policy, the long-run effect of budget deficits should be taken into consideration, because that is more permanent and enhances human development.*

Key Words: *Budget Deficit Financing, Budget Deficit to GDP Ratio, Budget Deficits, Human Development, Human Development Index*

I. Introduction

The persistence and continuous deficit budgeting in both developed and developing countries in recent time has necessitated the need to pay more attention to its effects on the economy. Several countries of the world, developed and developing are engaged in deficit budgeting and financing for their fiscal and monetary policies in order to achieve their macroeconomic objectives. Different theories such as the Keynesian theory, the neoclassical theory, and the Ricardian Equivalence Hypothesis try to explain the rationale and implications of budget deficits on the economy but arrived at differing conclusions of positive, negative and no impact respectively.

For over three decades (1980 to 2013), Nigeria's fiscal policy has been expansionary, resulting in budget deficits in all the years with the exception of 1995 and 1996. The issues around budget deficits are not new, but the expected impact of the budget deficits on economic development of the past decades necessitates the current focus on fiscal policy studies by scholars. For instance, Islam and Wetzel (1991) assert that the growth of US Federal deficit provided the grounds for a reassessment of the effect of budget deficits on economic crisis of past decades over high public debts, high inflation, high interest rates, poor public and private investments, and slow growth and development, which were argued to be the responsibility of fiscal deficits.

Contemporary debates on budget deficits centre on whether budget deficits have positive impact, negative impact, or no impact on the economy as argued by the Keynesians, Neoclassical and the Ricardians respectively. Several empirical studies were carried out on the impact of budget deficits on the economy and concluded by agreeing with the Keynesians proposition (Kakar, 2011; Fatima, Ahmed & Rehman, 2011; Achegbulu & Maji, 2012). Some other empirical studies (such as Arora & Dua, 1993; Huynh, 2007; Keho, 2010) concluded and agreed with the Neoclassical economists that budget deficits have a negative impact on economic growth and development. The Ricardian Equivalence followers, in terms of empirical studies, agree that budget deficits do not have any impact on economic activities are the works of Nelson and Sigh (1994), Ghali (1997), Dalyop (2010).

Following the empirical studies supporting the Keynesian school of thought, one can conclude that budget deficits influence the economy positively. Very few empirical studies were carried out on these areas of human development and budget deficits. From the available existing empirical studies, none of the study proxied budget deficit with budget deficit financing and budget deficit to GDP ratio in Nigeria and relate them with human development, proxied by Human Development Index (HDI) of Nigeria. However, this study seeks to find out whether there is any causal relationship between budget deficits and human development in Nigeria? This problem will be resolved when this study achieves the following objectives:

- i. To examine the causal relationship between budget deficit to GDP ratio and HDI in Nigeria.
- ii. To find out the causal relationship between budget deficit financing and HDI in Nigeria.

In this study, two hypotheses are formulated to address the above research objectives, these are stated in their null forms as follows:

H₀₁: There is no causal relationship between budget deficit to GDP ratio and HDI in Nigeria.

H₀₂: There is no causal relationship between budget deficit financing and HDI in Nigeria.

II. Literature Review

2.1 Conceptual Framework

Budget deficit is defined by Likita (1999) as the excess of government planned expenditure over planned revenue. Budget deficit is the result obtained where the budgeted government expenditure is greater than the budgeted revenue (Anyafu, 1996). The above definitions only relate budget deficit to the matching of budgeted government expenditure and revenue without associating it to a definite period. Labonte (2010) refers the amount by which federal government outlays exceed revenues for a given year (Fiscal year) as annual federal budget deficit. Federal budget deficits can be made annually as fiscal economic plans (Fiscal Policy). Budget deficits can be measured in terms of budget deficit as a percentage of Gross Domestic Product (GDP) called budget deficit ratio and the budget deficit financing, which is done through different sources (Central Bank of Nigeria, 2014).

Policy of government called stabilization policy may centre on Federal budget deficit, which is a key function of government budgetary system initiated to stimulate the economy to prosperity. Musgrave and Musgrave (2004) refer to the use of budget policy to reduce unemployment and develop the well-being of human beings, maintain a reasonable degree of price stability, increase the rate of economic growth, and pursue balance of payment equilibrium as a stabilization function of public finance. Adams (2006) regards these objectives including equitable distribution of income as the economic development objectives. These objectives constitute the rationale of budget deficit for human capital development of an economy.

Human development can simply be viewed as economic development, which is simply a term used to refer to the economic well-being of citizenry of a country by promoting economic growth and good standard of living. These include the health human capital (Gyimah-Brempong & Wilson, 2004), education human capital and income per capita. The human capital is developed by health, education and quality of standard of living, those constitute the components of human development as defined by the United Nations Development Programme (UNDP). Human capital is directly related to human development as alluded by Haq (1996), that components of HDI; life expectancy, education index, and income index are directly related to human development within a nation.

United Nations (UN) through the United Nations Development Programme (UNDP) has developed a widely accepted index called the Human Development Index (HDI) to measure economic development in countries and regions. HDI does not replace GNP growth but adds to it; educational attainment and life expectancy (Economic Development, n.d.). HDI is a composite index combining health (proxied by life expectancy at birth), education (proxied by mean years of schooling and expected years of schooling), and living standard (proxied by Gross National Income per capita) to measure a country's economic development (Human Development Index, 2010). HDI above 0.800 is regarded as very high, HDI between 0.700 and 0.800 is regarded high, HDI between 0.500 and 0.700 is regarded as medium, and HDI of less than 0.500 is regarded as low. HDI is criticized for the arbitrary weights given to the items, its relativity, and it does not explain the changing structure of the economy. UNDP publishes Human Development Report on human development in different nations with the objective of evaluating the rate of human capital formation in these nations (UNDP Human Development Report, 2011).

2.2 Theoretical Framework of Budget Deficit and Human Capital Development

There are basically three schools of thought concerning the effects of budget deficits on the economy, i.e. Neoclassical theory, Keynesian theory and Ricardian Equivalence theory, each providing different paradigms (Bernheim, 1989). Firstly, the neoclassical theory of budget deficits stresses the need for attaining smoothing of tax (Lucas, 1986; Barro, 1989). This theory emphasizes on the expenditure induced deficits, whereby budget deficits are used to meet the increasing public expenditure while maintaining tax rates.

Neoclassical economics emphasizes on the crowding-out effect of private investments, which is based on deficit financing through loans and seignorage. Buitier (1983), Dalyop (2010), Gaber (2010), and Oladipo and Akinbobola (2011) confirmed in their studies that domestic debts, especially bank loans are responsible for crowding-out private investments. Neoclassical theory is concerned with real crowding out, which involves increase in government borrowing relative to taxation that leads to reduction in private investment due to constraints in aggregate supply (Ussher, 1998).

Secondly, the Keynesian inspired expenditure-led growth of the 1970s brought about the prominence of budget deficit. In addition, the Keynesian theory developed a number of new economic concepts, such as the multipliers, consumption and savings function, the marginal efficiency of capital, liquidity preference, I-S curve,

etc. According to Keynes (1936), supply does not create demand and as a result of that goods remain unsold, production is cut and unemployment is created that cannot be solved by reducing wages as advocated by the Neoclassical theory. The only solution for the low economic activities is for government to spend more in form of budget deficits. Keynes (1936) emphasises on government intervention to solve economic problems during the period of economic recession through budget deficits. He states that it is wrong to assume that competitive markets will, in the long run, deliver full employment or that full employment is natural, self-righting, equilibrium state of a monetary economy as in the neoclassical economics, but that under-employment and under-investment are likely to be the natural state unless active measures are taken in form of government intervention. Arestis and Sawyer (2004) argue that the case for fiscal policy in general is pivoted on the proposition that there is failure of such market forces that ensure high levels of demand.

Lastly, the Ricardian Equivalence theory holds that tax-induced deficit leads to higher future taxes that have present value similar to the initial tax cut. The demand for goods is based on expected present value of the future taxes. The assumption in the Ricardian theory is that government expenditure must be financed by taxes either now or sometimes in future, i.e. budget deficit is simply described as deferred tax (Ussher, 1998). Budget deficits can influence the price level through aggregate demand changes and it should change the expected value of the future taxes. In this sense, budget deficits and taxation are said to have equivalent effects on the economy hence the term, "Ricardian equivalence hypothesis" (Barro, 1979, 1989).

The theoretical foundation of this study on budget deficits and human development shall be the Keynesian model, which indicates that during recession, a policy of fiscal expansion should be taken to increase the aggregate demand in the economy thus boosting economic activities, hence developing the well-being of human beings.

2.3 Empirical Studies on Budget Deficits and Human Development

Several studies (such as Lee, 1997; Reminex, Ranis & Steward, 1997; Reminex Ranis & Steward, 2000; Prunera, 2000; Baddacci, Clements, Gupta, & Cui, 2004; Gupta & Verhoeven, 2001; Obi, 2007; Suescun, 2007; Mohammad, Majeed, Hassan & Lal, 2010; Oluwatobi & Ogunrinola, 2011; Asgha, Hussain & Rehman, 2012) on budget deficit/government expenditure and human development focused on education, health, human capital, poverty and UNDP HDI as proxies for human development. Lee (1997) investigates how Korean Economy has achieved its present level of economic growth and human development and how they interacted within the economy (i.e. economic growth and human development). The study finds that the remarkable advancement in education in Korea is not only attributed to economic growth alone but also to the special characteristics of Korean growth strategies that were followed with equity and global focus. In turn, economic growth has gained from the education level of the Korean human resources that absorbed advanced technology from the developed nations. This study focuses on education as an element of human development that stands as a catalyst for economic growth, and the growth enhances the level of education.

Ramirez, Ranis and Steward (1997, 2000) utilize cross-country statistics for the period 1970 – 1992 to find out the links between economic growth and human development (i.e. two chains) and the importance of various links in each chain. The studies reveal that the strength of the relationship between economic growth and human development can be attributed to government expenditure on health and education as important links. This position is re-echoed by Gupta and Verhoeven (2001) in their study, assessing the efficiency of government expenditure on education and health in 37 countries in Africa within the period 1984 to 1995 with comparison to countries in Asia and the Western Hemisphere. The study discovers that countries in Africa on the average are less efficient than Asian and Western Hemisphere countries. The study also reveals that spending on education and health in Africa became more efficient within the period of the study but need more budgetary allocations for higher attainment.

According to Ramirez, Ranis and Steward (1997, 2000), on the other side of the chain, discover investment rate and income distribution as important links determining the strength of the relationship from human development to economic growth. The study concludes that the two chains can be attributed to vicious category (pursue for economic growth) and virtuous category (pursue for human development) and both should be promoted, but with sequential priority to human development. As rightly concluded by many scholars, economic growth is expected to be the immediate product of increased public expenditure incurred to enhance the living standard of the citizenry.

Prunera (2000) finds an inverse relationship between deficit and human capital accumulation in 68 countries using regression analysis and endogenous growth model. Baddacci, Clements, Gupta and Cui (2004) find that both education and health spending have a positive and significant direct impact on the accumulation of education and health capital, and thus lead to higher economic growth using generalised least squares based on panel data from 120 developing countries.

Oluwatobi and Ogunrinola (2011) utilize VEC model and augmented Solow model to study government expenditure and human capital development towards attaining economic growth in Nigeria. Capital

expenditure and recurrent expenditure on education and health are among the explanatory variables, while level of real output is the dependent variable. The finding of the study shows that there is a positive relationship between government recurrent expenditure on human capital development and the level of output, whereas government capital expenditure is negatively related to the level of real output.

Suescun (2007) uses regression and sensitivity analysis to find out the role of fiscal policy in human development and growth in 15 Latin American economies by developing a dynamic intertemporal general equilibrium model that endogenizes and incorporates human development and other indicators in a small open economy. The study finds that infrastructure spending dominates other forms of spending, such as education, health, government consumption and transfers to low-wealth households, in terms of sizeable positive effects on growth performance, welfare, human development and social progress in Latin American countries. Capital expenditure is been emphasized here as to have a positive impact on human capital development and other indicators which is contrary to the findings of the study of Oluwatobi and Ogunrinola (2011).

Obi (2007) examines the rise in fiscal policy as a tool of macroeconomic management in the alienation of poverty and reduction of income disparity utilizing a static real-side computable general equilibrium model. The study finds that targeting of public expenditure seems to be the most potent tool for effective reduction of poverty in Nigeria. In the same vein, Asgha, Hussain and Rehman (2012) carry out a study on assessing the impact of government spending in various sectors of the economy on poverty reduction in Pakistan utilizing VEC on 1972 to 2008 time series annual data. The study finds that government spending on education, and law and order significantly impact positively on poverty reduction, whereas, government spending on budget deficit and economic and community services are responsible for poverty in Pakistan. Government expenditure on health has no impact on poverty.

In summary, studies reviewed on budget deficits and human development concentrated mostly on expenditure on education or its % to GDP, expenditure on health or its % to GDP, total public expenditure, economic growth rate, GDP, current expenditure, capital expenditure, and poverty as proxies. None of the studies focused on the combination of budget deficit to GDP ratio and deficit financing as they affect human development in terms of globally accepted UNDP HDI in Nigeria. A study by Mohammad, Majeed, and Hussain (2010) used UNDP HDI as dependent variable but related it to foreign direct investment (FDI) and real GDP ratio as proxies for globalization in Pakistan. From the reviewed studies there is no study on HDI on one side and budget deficits, using budget deficit financing and budget deficit to GDP ratio as proxies on the other side.

III. Research Methodology

This study adopts a quantitative causal and empirical research design based on the study’s research problem. The study, which is an empirical one, is designed to utilize econometric techniques to analyse historical time series data obtained from secondary sources. Econometric analysis, being a very powerful tool for model estimation is adopted because of the involvement of economic theory, economic data and economic models in this study. The econometric techniques designed to be used based on the type of data are (1) Augmented Dickey–Fuller to test for a unit root in the individual data series, (2) Johansen co-integration to test for the integration of all the data series, and (3) vector error correction (VEC) model using Wald statistics and significance of error correction term to test causality in the dynamic system. The significance of Wald statistics is used to test for causality between the variables using VEC model (Gaurisankar, et al., 2011; Hossain, 2012). Other similar studies that employed the use of vector autoregressive model include Egwaikhide, Chete and Falokun (1994) and Aruwa (2011).

Time series data were obtained from CBN statistical Bulletin, publications of National Bureau of Statistics (NBS), Ministry of Finance (MOF) Medium Term Fiscal Framework and other publications and World Bank’s World Development Indicators.

3.1 Specification of Vector Error Correction (VEC) Models

The model specifications for the hypothesis stated earlier are based on endogenous lag models and stated as follows:

VAR Model of HDI and BUDRA for H₀₁:

$$\Delta LHDI_t = \alpha_0 + \alpha_1 \Delta LHDI_{t-1} + \alpha_2 \Delta LBUDRA_{t-1} + ECT_{t-1} + \mu_t \dots \dots \dots (1)$$

$$\Delta LBUDRA_t = \beta_0 + \beta_1 \Delta LBUDRA_{t-1} + \beta_2 \Delta LHDI_{t-1} + ECT_{t-1} + \mu_t \dots \dots \dots (2)$$

VAR Model of GPERC and BUDEF for H₀₂:

$$\Delta LHDI_t = \alpha_0 + \alpha_1 \Delta LHDI_{t-1} + \alpha_2 \Delta LBUDEF_{t-1} + ECT_{t-1} + \mu_t \dots \dots \dots (3)$$

$$\Delta LBUDEF_t = \beta_0 + \beta_1 \Delta LBUDEF_{t-1} + \beta_2 \Delta LHDI_{t-1} + ECT_{t-1} + \mu_t \dots \dots \dots (4)$$

Where LHDI is Natural Logarithm of Human Development Index (HDI), LBUDRA is the Natural Logarithm of Budget Deficit to GDP Ratio, and LBUDEF is the Natural Logarithm of Budget Deficit

Financing. Also, α_0 and β_0 are constants, $\alpha_1, \alpha_2, \beta_1, \beta_2$ are coefficients of the VAR models, ECT is the error correction term, μ is the error term, and t is time.

IV. Results and Discussion

4.1 Unit Root Test using Augmented Dickey-Fuller Method

Investigations into the properties of individual time series data after converting them to natural logarithm is done in this section. Augmented Dickey-Fuller (ADF) unit root test is used to investigate the properties of each natural logarithm of the time series data and lag lengths were selected automatically based on Schwarz Information Criterion (SIC) in the EViews computer software. Three models (i.e. constant, constant and intercept, and no constant and no intercept) of ADF as stated in the methodology are tested at both levels and first difference of each time series data. The summary of the ADF test results are presented in table 1 below.

From table 1 below, all the variables for all models became stationary at 1st different 1(1). The order of stationarity may influence the causality test to be carried out, i.e. whether to use unrestricted VAR model or restricted VAR (VEC) model. If the variables are of order 1(1), it means that there may be cointegration in the long run and VEC model is appropriate to test for causality. While if the variables are not of order 1(1) and cannot cointegrate in the long-run, unrestricted VAR model is appropriate to test for causality.

Table 1: Augmented Dickey-Fuller Unit Root Test Results

VARIABLE	INTERCEPT			INTERCEPT & TREND			NONE		
	t-Stat.	Critical Value	Prob.	t-Stat.	Critical Value	Prob.	t-Stat.	Critical Value	Prob.
LBUEDEF	-1.5504	-2.9718	0.4939	-4.3189	-3.5806	0.0101*	1.4948	-1.9534	0.9632
LBUDRA	-3.4807	-2.9719	0.0163*	-4.9670	-3.5806	0.0022*	-1.5477	-1.9534	0.1124
LHDI	-7.3726	-3.0124	0.0000*	-5.2293	-3.5629	0.0010*	0.3366	-1.9539	0.7753
IST DIFF.									
LBUEDEF	-6.9695	-2.9810	0.0000	-6.8296	-3.5950	0.0000	-6.7575	-1.9544	0.0000
LBUDRA	-7.1234	-2.9810	0.0000	-6.9790	-3.5950	0.0000	-7.3549	-1.9544	0.0000
LHDI	-6.3175	-3.0207	0.0000	-6.3983	-3.6584	0.0002	-6.7077	-1.9529	0.0000
STATIONARITY			Order			Order			Order
LBUEDEF			1(1)			1(1)			1(1)
LBUDRA			1(1)			1(1)			1(1)
LHDI			1(1)			1(1)			1(1)

Source: Authors' Computation using EViews 7. * Stationary at level

4.2 Cointegration Test

This study utilizes the Johansen Cointegration method to test for long run relationship between the time series variables. Both Trace statistics and Max-Eigen statistics were considered in deciding on the test of causality to be carried out based on endogenous lag models. The following table shows the cointegration test based on Johansen Cointegration method:

Table 2: Johansen Cointegration Test Results

Variable	Lag Order Selected	Trace Statistics	0.05		Decision on Cointegration	Test of Causality
			Critical Value	P-value		
LHDI LBUDRA	1	21.3867	15.4947	0.0057	1 Cointegrating Equation	VEC
LHDI LBUEDEF	1	19.4943	15.4947	0.0118	1 Cointegrating Equation	VEC
Variable	Lag Order Selected	Max-Eigen Statistics	Critical Value	P-value	Decision on Cointegration	Test of Causality
LHDI LBUDRA	1	17.3623	14.2646	0.0157	1 Cointegrating Equation	VEC
LHDI LBUEDEF	1	15.9304	14.2646	0.0270	1 Cointegrating Equation	VEC

Source: Authors' Computation using EViews 7

Table 2 shows that there is 1 cointegrating equation between HDI& BUDRA and HDI& BUDEF, therefore, VEC model is appropriate to carry out the causality test. Lag order was selected based on VAR Order Selection Criteria considering Akaike Information Criterion, Schwarz Information Criterion, Hannan-Quinn Information and others. The selected lag order were used in testing for cointegration and in the VEC models.

4.3 Test of Causality using Vector Error Correction (VEC) Model

Hypotheses of long-run causality and short-run causality are tested here based on the probability values of Error Correction Term and Wald Test Chi-square from the VEC models. From the VEC estimates, system is made using EViews 7 and the equations are estimated using Ordinary Least Squares (OLS) individually to ascertain the p-values of the coefficients (see table 3) before Wald Statistics is used to perform Granger causality test at 5% level of significance. These are shown below:

Systems Made from VEC Models using EViews 7:

$$H_{01}: D(LHDI) = C(1) * (LHDI(-1) - 0.0184188903721 * LBUDRA(-1) + 0.862820348158) + C(2) * D(LHDI(-1)) + C(3) * D(LBUDRA(-1)) + C(4) \text{-----Equation 1}$$

$$D(LBUDRA) = C(1) * (LBUDRA(-1) - 54.29208708 * LHDI(-1) - 46.8443174766) + C(2) * D(LBUDRA(-1)) + C(3) * D(LHDI(-1)) + C(4) \text{-----Equation 2}$$

$$H_{02}: D(LHDI) = C(1) * (LHDI(-1) - 0.00787558328162 * LBUDEF(-1) + 0.939172042737) + C(2) * D(LHDI(-1)) + C(3) * D(LBUDEF(-1)) + C(4) \text{-----Equation 3}$$

$$D(LBUDEF) = C(1) * (LBUDEF(-1) - 126.974722283 * LHDI(-1) - 119.251109302) + C(2) * D(LBUDEF(-1)) + C(3) * D(LHDI(-1)) + C(4) \text{-----Equation 4}$$

Table 3: Estimation of VEC Models from Systems Made of Equations 1 to 4

Model	Test Statistics	ECT = C(1)	C(2)	C(3)	C(4)	R-squared	F-statistics	Prob. (F-stat.)	Durbin - Watson Statistic	Hypothesis
Equation 1	Coefficient	-0.319459	-0.159506	0.002758	0.014776	0.476533	3.944804	0.03339	1.56501	H ₀₁
	Std. Error	0.108975	0.152885	0.006611	0.00872					
	t-Statistics	-2.931495	-1.043307	0.417241	1.694476					
	Probability	0.0117	0.3158	0.6833	0.1140					
Equation 2	Coefficient	-0.010993	-0.082334	-0.488871	-0.024526	0.02392	0.098024	0.95961	2.56239	
	Std. Error	0.076565	0.214884	5.724876	0.316512					
	t-Statistics	-0.14358	-0.383154	-0.085394	-0.077489					
	Probability	0.8882	0.7083	0.9334	0.9395					
Equation 3	Coefficient	-0.384396	-0.171977	0.004959	0.013869	0.516653	4.631939	0.02052	1.586037	H ₀₂
	Std. Error	0.119317	0.144677	0.00669	0.008616					
	t-Statistics	-3.221629	-1.188693	0.741311	1.60976					
	Probability	0.0067	0.2558	0.4717	0.1315					
Equation 4	Coefficient	0.021997	-0.113002	-3.227536	0.322625	0.054395	0.230094	0.87366	2.438715	
	Std. Error	0.034151	0.217489	5.191922	0.308696					
	t-Statistics	0.644109	-0.519577	-0.621646	1.04512					
	Probability	0.5316	0.6128	0.5458	0.3166					

Source: Authors' computation from VEC estimates using EViews 7

Table 4: Wald Statistics Test of Causality of the VEC Models (Equations 1 to 4)

Test Statistics									Hypothesis
t-Statistic			F-Statistics			Chi-square			
Value	DF	Prob.	Value	DF	Prob.	Value	DF	Prob.	
0.417241	13	0.6833	0.17409	(1,13)	0.6833	0.17409	1	0.6765	H ₀₁
-0.085394	12	0.9334	0.007292	(1,12)	0.9334	0.007292	1	0.9319	
0.741311	13	0.4717	0.549542	(1,13)	0.4717	0.549542	1	0.4585	H ₀₂
-0.621646	12	0.5458	0.386443	(1,12)	0.5458	0.383941	1	0.5355	

Source: Authors' computation using EViews 7

From equation 1 in table 3, the coefficient [C(3)] of LBUDRA_{t-1} is not significant (p-value = 0.6833) to cause LHDI at 5% level of significance. Wald test in table 4 has shown that C(3) is zero (H₀ cannot be rejected at 5% level of significance, p-value of chi-square = 0.6765), meaning that BUDRA does not granger cause HDI in the short-run. From table 3, coefficient [C(1)] of the error correction term is significant and negative (p-value of 0.0117) at 5% level of significance, therefore, there is a long-run causality running from BUDRA to HDI. From table 3, the coefficient of LHDI_{t-1} is not significant (p-value = 0.9334) to cause LBUDRA at 5% level of significance. Wald test in table 4 has shown that C(3) is zero (H₀ cannot be rejected at 5% level of significance, p-value of chi-square = 0.9319), meaning that HDI does not granger cause BUDRA in the short run. From table 3, coefficient [C(1)] of the error correction term is not significant but negative (p-value of 0.8882) at 5% level of significance, therefore, there is no long-run causality running from HDI to BUDRA

From the foregoing, H₀₁ is rejected at 5% level of significance. This means that there is only a unidirectional long run causality running from budget deficit to GDP ratio to human capital development in Nigeria. Impulse response analysis of one standard deviation innovation shock on HDI and BUDRA is shown in appendix 2

From table 3, the coefficient of LBUDEF_{t-1} is not significant (p-value = 0.4717) to cause LHDI at 5% level of significance. Wald test in table 4 has shown that C(3) is zero (H₀ cannot be rejected at 5% level of

significance, p-value of chi-square = 0.4585), meaning that BUDEF does not granger cause HDI in the short-run. From table 3, coefficient [C(1)] of the error correction term is significant and negative (p-value of 0.0067) at 5% level of significance (H_0 is rejected), therefore, there is a long-run causality running from BUDEF to HDI.

From table 3, the coefficient of $LHDI_{t-1}$ is not significant (p-value = 0.5458) to cause LBUDEF at 5% level of significance. Wald test in table 4 has shown that C(3) is zero (H_0 cannot be rejected at 5% level of significance, p-value of chi-square = 0.5342), meaning that HDI does not granger cause BUDEF in the short-run. From table 3, coefficient [C(1)] of the error correction term is not significant and not negative (p-value of 0.5316) at 5% level of significance (H_0 is not rejected), therefore, there is a no long-run causality running from HDI to BUDEF.

From the results above H_{02} is rejected at 5% level of significance. This means that there is a unidirectional long-run causality running from budget deficit financing to human capital development in Nigeria. Impulse response analysis of one standard deviation innovation shock on HDI and BUDEF is shown in appendix 2.

There is a unidirectional long-run relationship between budget deficit financing and human development with budget deficit financing causing human development in the long-run. Long-run causal relationship exists between budget deficit to GDP ratio and human development with budget deficit to GDP ratio causing human development index. All the proxies of budget deficits significantly influence human development in Nigeria on the same direction in the long-run. These findings are consistent with the findings of Lee (1997), Remirex, Ranis and Steward (1997, 2000), Gupta and Verhoeven (2001), Sodipe and Ogunrilola (2011), and Asgha, Hussain and Rehman (2012) but disagree with Fofona (2001). These studies found out that budget deficits or increased government spending on health and education cause human development. These studies found a reciprocal causality relationship which is not consistent with the findings of this current study. The implication of these findings is that budget deficits have no short-run causality with human development in Nigeria but have long-run causality with human development. The response of human development index to budget deficit is positive for the next ten years.

V. Conclusions

From the findings of this study, the study concludes majorly that there is significant causal relationship between budget deficits and human capital development in Nigeria following the Keynesian theory. The implication of this is that budget deficit causes human capital development in Nigeria in the long-run. The following are the specific conclusions drawn from the findings:

1. Unidirectional long-run causal relationship exists between budget deficit to GDP ratio and human development index, i.e. long-run causality runs from budget deficit to GDP ratio to human development index in Nigeria and there is no short-run causality between them.
2. Budget deficit financing has long-run unidirectional causal relationship with human development index in Nigeria, running from budget deficit financing to human development index, with no feedback. There is no short-run causality between the variables.

To enable the study achieve its significance, the following recommendations arising from the findings are provided.

1. The long-run effect of budget deficits should be taken into cognizance whenever a budget is prepared. Long-run effect of budget deficits is more permanent and enhances economic development due to its long-run effects on human capital development.
2. Reduction in budget deficits of the Federal Government is necessary to reduce the nation's exposure to debts due to the huge debt deficit financing.
3. To achieve a long-run effect of budget deficits on human capital development, fiscal discipline must be adhered to at all levels of government, i.e. reducing corruption so that money allocated for expenditures are utilized efficiently for the same expenditures.
4. More budgetary provisions should be made for education and health because such expenditures enhance human capital development in Nigeria that will in turn lead to economic growth.

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Appendix

Appendix 1: Data on Budget Deficits and Human Capital Development

YEAR	HDI ¹	BUDRA ²	BUDEF ³
1980	0.378	3.98	1,975.20
1981	NA	8.19	3,902.10
1982	NA	12.44	6,104.10
1983	NA	6.34	3,364.50
1984	NA	4.46	2,660.40
1985	0.391	4.48	3,039.70
1986	NA	11.94	8,254.30
1987	0.322	5.60	5,889.70
1988	NA	8.74	12,160.90
1989	NA	6.98	15,134.70
1990	0.246	8.27	22,116.10
1991	0.328	11.45	35,755.20
1992	0.348	7.42	39,532.50
1993	0.400	9.53	107,735.30
1994	0.393	7.81	70,270.60
1995	0.391	-0.05	-1,000.00
1996	0.400	-1.19	-32,049.40
1997	0.456	0.18	5,000.00
1998	0.439	4.92	133,389.30
1999	0.455	8.93	285,104.70
2000	0.462	2.26	103,777.30
2001	0.463	4.68	221,048.90
2002	0.466	4.36	301,401.60
2003	0.453	2.39	202,724.70
2004	0.448	1.51	172,601.30
2005	0.429	1.11	161,406.30
2006	0.430	0.55	101,397.50
2007	0.437	0.57	117,237.10
2008	0.443	0.20	47,378.50
2009	0.449	3.27	810,008.46
2010	0.454	2.04	1,105,439.78
2011	0.459	1.83	1,158,500.00
2012	0.471	1.37	975,700.00
2013	0.504	0.00	1,153,500.00

Source: Developed by Author from the CBN Statistical Bulletin 2013 and UNDP: Human Development Reports 1990 – 2014

Note: BUDRA: Budget Deficit to GDP Ratio
 BUDEF: Budget Deficit Financing
 HDI: Human Development Index
 NA: Not available

1 – In Index 2 – In % 3 - In ₦Millions

Appendix 2

Figure 1: Impulse Response Analysis of HDI and BUDRA

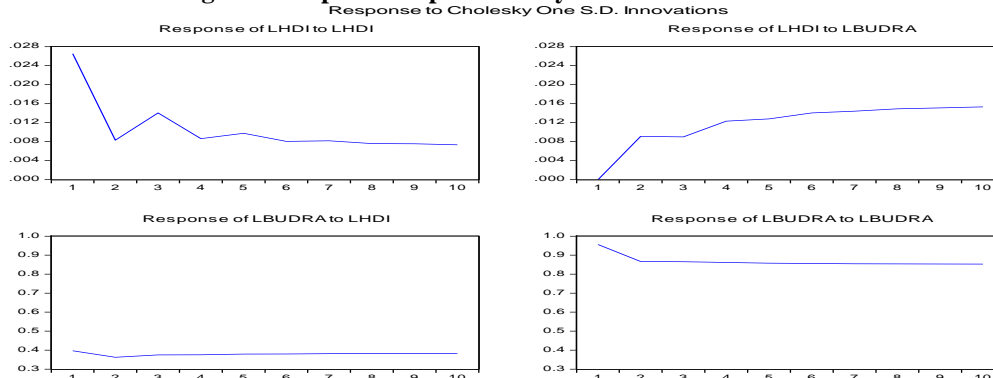


Figure 2: Impulse Response Analysis of HDI and BUDEF

Response to Cholesky One S.D. Innovations

