

The Dynamic Correlation between Fiscal Spending on Education, Health, Consumption and Standard of Living in Nigeria

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ABSTRACT

The fiscal spending of the government have always been a strong instrument towards achieving development and recovering economy from recession. This paper investigates the long run and short run impact of three component of government expenditure (education, health, and consumption expenditure) on standard of living in Nigeria with time series data from 1981 to 2017. The study employs ordinary least square method of estimation on a range of equation models: Vector error correction model and the impulse responses function model. The result shows that fiscal spending on education, health, and consumption have a long run relationship with standard of living in Nigeria and the speed of adjustment towards long –run equilibrium is 61.45%, moderately high. The short run coefficient results reveals that education expenditure in both lag 1 and 2 have a positive and significant impact on standard of living while health and consumption expenditure have insignificant impact on standard of living in Nigeria. Using Impulse Response Function model, we found that none of our fiscal spending variables (education expenditure, health and consumer spending) were able to emit positive impulses/shocks on the standard of living in Nigeria. The study recommends that government should ensure that fiscal spending on education, health, and consumption should be well managed, accounted for and the method should be transparent to the populace.

Keyword: Fiscal Spending, Education, Health, Consumption, Standard of Living

JEL Classifications: E21, H51, H52

1. INTRODUCTION

Government expenditure forms the most important aspect of fiscal operation of the government and the prime objectives of the fiscal policy of any government are creating and sustaining a healthy economic growth believing that there is a positive and significant link between expenditure and economic growth. Theoretically it has been affirmed and proven by basic laws especially the Wagner's law of Increasing State Activities, Though J. M. Keynes belief that the government plays a significant role in the development of a country and public sector expenditure as an important instrument for the government to control the economy was reemphasized in the areas of distribution and redistribution of income, acceleration and stability of economic growth through enhanced aggregate

demand. Also Jhingan stated that public sector expenditure, by increasing social welfare, helps in reducing inequalities of income and wealth and as well can be used to create trade as well as to correct externalities and regional disparities if employed judiciously, thereby fastening economic growth (Iheanacho, 2016). Wagner (1883) emphasized that as the economy develops overtime, the activities and function of the government increases and the increased government activities leads to the expansion and intensification of government function which normally leads to increase in public expenditure. In this terms many researchers have tried to find out the extent of Wagner's law using country studies; Wagner and Warren (1977), Lamartina and Zaghini (2011), Kumar et al. (2012), Kuckuck (2011), and Antonio and Jose (2016) and all these studies conform to the findings of Wagner.

True to the Wagner's law many modern economies have experienced tremendous growth in public expenditure globally, some economies have embarked on increased expenditure as a fiscal exercise to attain economic stability, to maximize social benefits, achieve equitable distribution and redistribution of scarce resources, maintain and sustain economic stability and the growth of various sectors like agriculture, industry, transport, communication, education, energy, and health, import and export depends on how much government are willing to invest in them. Esteban and Max (2016) stressed that the role and size of government around the world has increased and public spending has remarkably increased in the 20th century.

Nigeria is not equally left out in the global trend of increased spending by the government. Government Spending in Nigeria increased to N795880. 3 M from 624001.80 Million in 2017. Government Spending in Nigeria averaged 1031026.93 NGN Million from 2010 until 2017, reaching an all-time high of 1615675.03 Million Naira in the fourth quarter of 2010 and a record low of 624001.80 NGN Million in the third quarter of 2017. And capital expenditure was in excess of 1.5trillion naira over the 2016 budget. If all things being equal we are expecting the high and rising fiscal expenditure of the government to correlate positively and significantly on some indices like poverty rate, standard of living, employment, and consequently economic growth. Though researches have been carried out to establish the relationship between government expenditure and growth globally, Taiwo and Abayomi (2012) analyzes the implication of government spending on the growth of Nigeria economy over the period 1980-2009 using error correction model. The found that capital expenditure improves economic growth in Nigeria, Ubesi (2016), Gylych and Musa (2016), Chimobi (2009), Nwosa (2014), Taiwo and Abayomi (2012), Udoka and Anyingang (2015), Oni et al. (2014), Okoro (2013), Cooray (2009), Emerenin and Ihugba (2014).

If these numbers of researchers have found positive and significant impact/effect of government expenditure on economic growth in Nigeria, and we assume that Wagner's Law stands, we expect the above indices to reflect positively on the standard of living of Nigerian. But the current status quo of Nigeria economy in terms of standard of living remain same consequently; according to the latest report by the National Bureau of Statistics, about 112 M Nigeria representing 67.1% of the total population lives below poverty line. And Nigeria has been listed among the thirteenth African countries with extreme poverty record. The general concerns of this paper is despite the large number of researches revealing a positive impact of government expenditure on economic growth, why is this growth not reflecting in the standard of living of the population as such we are concerned on (i) the correlation between the total fiscal expenditure of the government and standard of living in Nigeria, (iii) secondly, if government expenditure is disaggregated into consumption expenditure, expenditure in health, expenditure in education, what will be the impact on standard of living in Nigeria. (iii) What are impulse response of expenditure on standard of living in Nigeria?

Thus, our objective will be in two folds, (i) secondly, to examine the impact of consumption expenditure, health and education

expenditure on standard of living in Nigeria (iii) to check the impulse response of standard of living on unit shock from education, health and consumption expenditure in Nigeria.

H_1 : There is no significant long and short run impact of fiscal spending(education, health, consumption) on standard of living in Nigeria.

H_2 : Fiscal spending (education, health, consumption) does not emit positive impulses on Standard of living in Nigeria.

2. THEORETICAL AND EMPIRICAL LITERATURE

Public expenditure is an important aspect of public finance and as such can be explained as spending by the government on public services, maintenance of law and order, provision of amenities like good, churches, hospital etc. Blair (2017) sees public spending as an expenditure made by three tiers of government in the case of Nigeria, the federal, state and local government. While Singh et al. (2018) stressed that government expenditure is spending made by the government to finance government activities which are aimed at improving social welfare. And Keynes (1936) explained public expenditure as a tool adopted by the government to avert an economic downturn like depression.

Singh et al. (2018) define public expenditure as an expenditure incurred by the three tiers of government (central, state or local government) of a country for its own administration, social welfare, and economic development for providing aids to other country. According to Piana (2001) public expenditure can be classified into (i) capital goods, (ii) consumption goods (iii) personnel expenditure as well as the macro-function at which is being directed: (a) Justice and public order, (b) Infrastructure, (c) military system (d) environment protection (e) education system (f) health care (g) support to the poor, the old, the disadvantaged, and others. But basically we have three main type of government expenditure which includes; current or government final consumption expenditure, capital expenditure or fixed capital formation and transfer payments (Khemanji (2007), Jhingan (2003, 2006), Laudau (1983) and Uma et al (2013)).

2.1. Wagner's Law of Increasing State Activity

Wagner's law of increased state activity states that "as the economy develops over time, the activities and functions of the government increases alongside" Adolph Wagner did an extensive and intensive comparison of different countries at different time and he concludes that as societies grow and expand, the activities of both central and local government also expands to accommodates new projects and functions. As they perform these functions simultaneously, people needs are being satisfied. Wagner also emphasized that there is a positive relationship between public expenditure, per capita income, and population's density (Arani (2011) and Konya and Bekzod (2018)).

2.2. Peacock and Wiseman Theory of Public Expenditure

Peacock and Wiseman reemphasizes on the strength of Wagner's law by carrying out a study in United Kingdom in 1891-1955.

The theory hypothesized that public spending does not increase in a smooth and continuous way but rather in a jolts and jerks movement in an attempt to address disturbances like epidemics, wars, and natural disaster among others. "The rise in public functions greatly depends on tax collection and over years, the revenue collection increases and this enables an increased expenditure. Secondly there will exist a big gap between the expectations of the people and the tolerance level of taxation. Again, based on increased spending by government, revenue falls and in an attempt to generate revenue, taxes imposed on the workers will increase. At first the masses will not be willing to pay, but after a time will accept the tax law in times of crisis showing a new level of tax tolerance (Peacock and Wiseman (1961).

2.3. Musgrave Theory of Public Expenditure Growth

This theory as propounded by Musgrave discovered shifts in the income elasticity of demand for public services in three ranges of per capita income. He is of the view that at low levels of per capita income, the demand for public services tends to be very low and as a result, such income is given to meet primary needs so that when per capita income rises above these levels of low income, the demand for public services such as education, healthcare services, transportation, among others also rises. Musgrave observed that at higher levels of per capita income, which is mostly found in developed economies, the rate of growth of the public sector tends to fall as the more basic wants are being satisfied. (Musgrave in Emerenini and Ihugba (2014)).

In as much as this theory is quite credible, it still has its own limitations of which Musgrave acknowledged that the size of public expenditure cannot be predicted specifically in later stages. Given the change in consumption pattern of the private sector as a result of an increase in their per capita income, it is also possible that public expenditure rises again in an attempt to meet the growing demand for public goods such as education, social security, infrastructure, health care among others. Therefore public expenditure is said to be a function of the level of income and needs of the citizens (Musgrave 1969. p77). Also, it is near impossible to define a single stage of development for any given country. Especially in developing countries, diverse stages can be seen at the same period (Musgrave and Musgrave 1984).

2.4. Empirical Literature

Empirical literatures abound on the impact and effect of total expenditure on macroeconomic variables and most of them are below;

Folster and Henrekson (2001) explore the relationship existing between government expenditure and taxation in rich countries using a panel data covering 1970–1995. The result reveals that large government spending affected growth negatively. They recommend that government ought to cut down their spending on those projects that yields low benefits to the public. Liu et al. (2008) explore data from United States of America from 1974 to 2002 to investigate the causality between government expenditure and GDP, the model result showed that total government expenditure causes growth of GDP. The study affirms that GDP growth does not cause expansion of government expenditure and

public expenditure increases the US economic growth. Likewise, Chimobi (2009) carried out a study using cointegration and granger causality model to test the long run relationship and the direction of causality existing between government expenditure and national income in Nigeria from 1970 to 2005. The study finds long run relationship between expenditure and national income, again, there exists a unidirectional causality from government expenditure to national income and he concludes that government expenditure plays a significant role in promoting economic growth in Nigeria. In Pakistan, Rehman et al. (2010) concentrated on using Toda-Yamamoto causality model for the period of 1971-2006 examined the direction of causality between public expenditure and GDP along with various selected components of public expenditure. First, the study found a unidirectional causality running from GDP to government expenditure. Secondly, at disaggregated level, result indicates that GDP only causes administrative expenditure and there is no causality between development expenditure, debt servicing and defense expenditure on the whole. Also in Pakistan, Ali et al. (2012) conducted a study to investigate the role of government expenditure in human development using autoregressive distributed lags bounds approach of cointegration on different macroeconomic variable was adopted between 1972 and 2010 to examine the impact of government expenditure on the welfare of the Pakistan. Results reveals that increase in per capita income and education expenditure have a positive effect and current expenditure has negative effect on human development.

Birowo (2011) in his study attempts to find the relationship between government expenditure and poverty rate (standard of living) in Indonesia. The study employed OLS and data collection involved the use of both quantitative and qualitative research method. The study revealed that government expenditure generally did not have a negative relationship with poverty rate. In Nigeria, Nwosa (2014) examined the impact of government expenditure on unemployment and poverty rates from 1981 to 2011. OLS estimation technique was employed; it was observed from the results that government expenditure has positive and significant impact on unemployment rate whereas it was negative and insignificant on poverty rate.

Lamartina and Zaghini (2011) proposes a panel cointegration analysis of joint development of government expenditure and economic growth in twenty three (23) Organization of Economic Cooperation and Development Countries. There is an indication of structural positive correlation between public spending and per-capita GDP. This is consistent with the Wagner's law. In support of the Wagner's law, Antonio and Jose (2016) using data of 14 European Countries from 1996 to 2013 employed panel model and SUR method to access public expenditure – income elasticity. They find that government spending in Austria, France, the Netherlands, and Portugal validate Wagner's Law. Taiwo and Abayomi (2012) test the effects of government expenditure on the growth rates of real GDP in Nigeria between the years (1970 and 2008) using OLS technique. Conclude that there is a positive relationship between real GDP as against the recurrent and capital expenditure. While an Expost Facto research design was used by Udoka and Anyingang (2015) to investigate the effects of the public expenditure on the growth and development of Nigeria economy 1980-2012. The result indicates that both aggregate, recurrent and capital

expenditure have positive and significant impact on growth and development of the Nigeria economy. Oni et al. (2014) carried out a study on the joint effects of capital and recurrent expenditure of the government on the growth and development of the Nigerian economy. The OLS econometric technique was employed and results showed that both capital and recurrent expenditure impacts positively on economic growth and development during the period covered. Supporting the above result, Okoro (2013) examined the impact of government spending on the Nigerian economic growth from 1980 to 2011, Error correction model and granger causality test were utilized and the result indicates there is a long equilibrium relationship between government spending and economic growth in Nigeria and the short run dynamics adjusts to the long run equilibrium at the rate of 60% per annum and Cooray (2009) investigates the role of government in economic growth by extending the neoclassical production function to incorporate two dimension of the government size; the size and quality augmented model, where size is measured by government expenditure and quality by governance. He finds that both size and quality of government are important for economic growth. In contrast, Abu and Abdullahi (2010) using a disaggregated analysis explored the impact of government expenditure and economic growth in Nigeria from 1970 to 2008, they discovered that government total capital expenditure and recurrent expenditure and government expenditure in education have negative effect on economic growth while rising expenditure on transport and communication, health lead to increased growth. Sefa et al. (2015) explores the effect of government education and health expenditure on economic growth using a meta-analysis for a sample of 306 estimates drawn from 31 primary studies. They found that the effect of government health expenditure is negative and the meta analysis suggests that the factors such as econometric specifications, publication characteristic explains the heterogeneity in the literature. Other studies that found negative relationship between expenditure and economic growth are Akpan (2005), Landau (1983), Aregbeyen (2007), Modebe et al. (2012), Iheanacho (2016).

Ayo and Ifeckukwu (2012) investigate the causality relationship among economic growth, government expenditure and inflation rate in Nigeria over a period 1970-2001 using tri-variate vector error correction model (VECM), the result indicates bidirectional causality between government expenditure and economic growth in the short-run and a unidirectional causality from economic growth and government expenditure to inflation while no feedback on inflation rate was observed. Whereas, Emerenin and Ihugba (2014) concentrated on the relationship between Nigeria's total expenditure and economic growth for the period 1980-2012 using Engel granger two step model was used and the result shows that GDP and total government expenditure are cointegrated. In addition, Koman and Bratimasrene (2007) carried out a research in Thailand using Granger Causality model, he finds that government expenditure and economic growth are not cointegrated but indicates a unidimensional relationship.

Dallis et al. (2017) examine the impact of public expenditure on human capital development in Nigeria from 1995 to 2015. The error correction model indicates that both capital expenditure on education have positive impact on tertiary enrolment in Nigeria, but

the impact of the recurrent expenditure on education is statistically insignificant. Also, Okafor et al. (2017) used vector auto regression model to examine the effect of government expenditure on human capital development in Nigeria for the period of 1986-2015, the result indicates that human development index is significant in the current year (-1) but tend to converge insignificantly in the previous year. The value of the joint significance indicates that the current values of EDU and HTH are most influencing factors that determine the current value of hdi (-1). They concluded that human capital is most influenced by nature, pattern and level of government expenditure in education and health.

3. MODEL SPECIFICATION AND METHODOLOGY

3.1. Data

The study uses annual secondary data covering the period from 1981 to 2017.

Three components of government expenditures were used: Education expenditure, health expenditure, and consumption expenditure, the dependent variable is standard of living measured by GDP per capita, and the control variables are population and inflation. Table 1 provides an additional information on the variables.

3.2. Model Specification

Various researches have been done in the areas of government expenditure and economic growth and many research models have been specified in this aspect, for example: Error correction model, autoregressive model, cointegration, correlation, panel model, cross sectional and structural models have been utilized by authors in the empirical literature. But for the basis of this paper, we specify our model along-side our research objectives.

In this framework, we employ two different models to capture our two fold objectives;

For Objective one, we employ the use of structural model to analyze the impact of three different component of government expenditure (education, health, and consumption) on standard of living in Nigeria

$$GDPPC=f(EDEXP, HEXP, COEXP, POP, INEQ) \quad (1)$$

The above functional equation can be transform into an econometric form;

$$GDPPC = \alpha_0 + \beta_1 edexp_t + \beta_2 hexp_t + \beta_3 coexp_t + \beta_4 popl_t + \beta_5 infl_t \quad (2)$$

Where GDPPC is of GDP per capita proxy for standard of living, edexp is education expenditure, hexp is health expenditure, and coexp is the consumption expenditure, popl population and Infl is inflation.

Thus below is our functional equation with error term (ε_t) to take care the white noise in our model

Table 1: Variable definitions

Variable	Definition	Unit	Sources
GDPPC	Represents the Gross Domestic Product per capita. It is derived by dividing the GDP by total population. It represents standard of living in Nigeria 'from 1981-2017	In Gdppc	Central Bank of Nigeria Statistical Bulletin (2018)
EDEXP	Education expenditure expressed as a percentage of GDP, is the sum of general government expenditure, current, capital and transfers from 1981 to 2017	Inedexp	Central Bank of Nigeria Statistical Bulletin (2018)
HEXP	Total health expenditure expressed as a percentage of GDP, is the sum of public and private expenditure. This covers the same periods	Inhexp	Central Bank of Nigeria Statistical Bulletin (2018)
COEXP	Total consumption expenditure as a percentage of GDP, captures total consumption by household and government from 1981 to 2017	Incoexp	Central Bank of Nigeria Statistical Bulletin (2018)
POP	Population is the total population based on de-facto definitions of population which counts all resident regardless of legal status expressed in percentage	Inpop	Central Bank of Nigeria Statistical Bulletin (2018)
Infl	Inflation is proxy as the consumer price index and expressed in percentage	Infl	Central Bank of Nigeria Statistical Bulletin (2018)

$$\text{GDPP } c_t = \alpha_0 + \beta_1 \text{ edexp}_t + \beta_2 \text{ hexp}_t + \beta_3 \text{ coexp}_t + \beta_4 \text{ popl}_t + \beta_5 \text{ infl}_t + \varepsilon_t \quad (3)$$

ε_t is the error term and α_0 is the intercept.

$$\Delta y_t = \delta + (I_k + \tilde{O} + \Phi_i^*) y_{t-1} + \sum_{i=2}^{p-1} \Phi_i^* - \Phi_{i-1}^* y_{t-p} + \varepsilon_t \quad (6)$$

Where I_k is a $k \times k$ identity matrix.

3.3. Empirical Method

3.3.1. Unit root test

In time series analysis to avoid spurious regression, we will check whether the variable is non-stationary and possess unit root. Therefore, to achieve this we use Augmented Dickey Fuller (ADF) test. In general, the approach to unit root testing assumes that the time series to be tested $= (y_t)_{t=1}^T$ can be written as

$$y_t = D_t + Z_t + \Sigma_t \quad (4)$$

Where

D_t =The deterministic component (trend, seasonal component etc)

Z_t =Is the stochastic component

Σ_t =Is the stationary error process.

The process is to determine whether the stochastic component contains a unit root or is stationary (Bhargava 1986, Bierens 2001, Dickey and Fuller 1979).

3.4. Method for Evaluation (Structural Model)

3.4.1. VECM for objective 1

VECM is a special case of VAR especially for variables that are stationary in their differences for example 1 (1) or 1 (0) and also takes into consideration of cointegrating factors/relationship among variables.

The VECM form with the cointegration rank ($\leq k$) is written as

$$\Delta y_t = \delta + \prod_{i=1}^{p-1} y_{t-i} + \sum_{i=1}^{p-1} \Phi_i^* \Delta y_{t-i} + \varepsilon_t \quad (5)$$

Where Δ is the differencing operator, such that $\Delta y_t = y_t - y_{t-1}$; $\prod = \alpha \beta'$, where α and β are $k \times r$ matrices; Φ_i^* is a $k \times k$ matrix.

It has an equivalent VAR (p) representation as described in the preceding section.

3.4.2. Impulse response function (IRF) for objective 2

IRF is refers to the reaction of any dynamic/structural system in response to some external shocks. It describes the reaction of a system as a function of time or as a function of some independent variables that parametrizes the dynamic behavior of the system (Lutkepohl, 2008). The impulse variable experiences the shock while the response variable reacts to the shock (Hamilton, 1994).

3.4.3. Econometric procedural (test)

Breusch-Godfrey Serial Correlation LM test; test for autocorrelation. Arch LM Test for Heteroscedasticity Jarque – Bera to check whether the residuals are normally distributed.

3.5. Presentation of Empirical Result

3.5.1. Unit root result

The unit root test result indicates that gdppc is integrated at level, edexp, coexp, popl infl, and grosex are all integrated of order (1) while hexp is integrated of order (2). This is because the absolute value of the computed ADF test statistics are greater than the absolute value of their tabulated ADF critical value at their level form given 5% level of significance. Therefore, gdppc is stationary at level, edexp, coexp, popl infl, and grosex are stationary at first difference while hexp is staitonary at second difference. Below is the summary of the unit root test in Table 2.

3.5.2. Johansen cointegration test

In order to investigate whether there exist long-run relationship among the variables (gdppc, edexp, hexp, coexp, popl, infl), we used Johansen cointegration test at 5% level of significance, the result of the Trace Statistics reveals that there is 2 cointegrated equation and Max-eigenvalue reveals that there is 1cointegrated equation, therefore, the variables have long-run relationship. This implies that the variables are cointegrated in the long-run. See Appendix for detailed result. Thus we can run the VECM.

Table 2: Summary of the unit root test result

Variable	ADF t-statistics			5% Critical			Value Order of
	Intercept	Intercept/trend	Non	Intercept	Intercept/trend	Non	
Gdppc	4.251	4.216	4.265	2.945	3.540	1.950	1 (0)
Edexp	5.178	3.819	4.739	2.948	3.595	1.950	1 (1)
Hexp	5.209	5.140	5.294	2.963	3.568	1.952	1 (2)
Coexp	8.763	8.662	8.826	2.948	3.544	1.950	1 (1)
Popl	9.693	9.676	8.867	2.948	3.544	1.950	1 (1)
Infl	5.515	5.439	5.598	2.948	3.544	1.950	1 (1)

Table 3: Dependent variable: D (GDPPC)

Method: Least squares (Gauss-Newton/Marquardt steps)				
	Coefficient	Std. Error	t-Statistic	Prob.
C (1)	-0.614537	0.282132	-2.178186	0.0415
C (2)	-0.087402	0.283640	-0.308144	0.7612
C (3)	-0.076958	0.202616	-0.379821	0.7081
C (4)	0.156004	0.094636	1.648465	0.1149
C (5)	0.273050	0.102522	2.663346	0.0149
C (6)	-0.315134	0.152421	-2.067522	0.0519
C (7)	-0.381029	0.155897	-2.444112	0.0239
C (8)	0.138467	0.180610	0.766665	0.4522
C (9)	0.263722	0.180927	1.457616	0.1605
C (10)	-0.182163	0.146432	-1.244010	0.2279
C (11)	-0.056131	0.115896	-0.484321	0.6334
C (12)	0.080389	0.085908	0.935757	0.3606
C (13)	0.131443	0.091987	1.428941	0.1685
C (14)	1.261765	1.751196	0.720516	0.4795
R-squared	0.465006			
Adjusted	0.117260			
R-squared				
F-statistic	1.337200			
Prob (F-statistic)	0.271358			
Durbin-Watson stat	1.921781			

E-View Computation 2019

3.5.3. VECM result

The Johansen cointegration test result suggest that we use VECM and therefore our model is specified below:

$$\begin{aligned}
 D(GDPPC) = & C(1)*(GDPPC(-1))+0.573812173011*EDEXP(-1) \\
 & 0.738356490907*HEXP(-1)+0.498519197772*COEXP(-1)-0. \\
 & 591430748944*POPL(-1)+0.0265906870848*INFL(-1)+16.537 \\
 & 5950223)+C(2)*D(GDPPC(-1))+C(3)*D(GDPPC(-2))+C(4)*D \\
 & (EDEXP(-1))+C(5)*D(EDEXP(-2))+C(6)*D(HEXP(-1))+C(7) \\
 & *D(HEXP(-2))+C(8)*D(COEXP(-1))+C(9)*D(COEXP(-2))+C \\
 & (10)*D(POPL(-1))+C(11)*D(POPL(-2))+C(12)*D(INFL(-1))+ \\
 & C(13)*D(INFL(-2))+C(14)
 \end{aligned}$$

Table 3 shows the summary of the VECM result for objective 1.

From the Table 3, we have the short run and long run result. C (1) is the coefficient of the cointegrating model which represent the long run coefficient while C (2) to C (14) are the short run coefficient. The coefficient of C (1) is -0.614537, which indicate that the speed of adjustment towards the equilibrium in the long run is 61.45%, it is negative and significant at 5% level. This means that there is long run relationship among the variables and this agrees with the Johansen cointegration result.

The coefficient of edexp are C (4) and C (5) and the result shows that it is only C (5) that is education expenditure in lag 2: (EDEXP(-2)) has significant and positive impact on Gdppc. While the Wald coefficient test C (4)=C (5)=0 (see appendix for detailed Wald Test result) reveals that there is short run significant impact of education expenditure (edexp) on standard of living (GDPPC).

The coefficient of hexp are C (6) and (7), the short run dynamic result indicates that health expenditure (hexp) have a negative and significant impact on standard of living (gdppc) and this concede with the result of Wald test: C (6)=C (7)=0 (see appendix for result). More so, the coefficient of consumer expenditure (C (8) and C (9)) have no significant impact on standard of living and also this agrees with the Coefficient wald test (C (8)=C (9)=0).

However, the coefficients of the control variables: Population and inflation (C (10) and C (11), C (12) and C (13)) altogether have no significant impact on standard of living in Nigeria.

3.5.4. Responses impulse function of the model 2

Table 4 represents the summary of the IRF aimed at tracing the responses of the dependent variable (standard of living (Gdppc)) to a one unit structural shock or standard deviation from fiscal spending variables (education expenditure, health expenditure, and consumer expenditure).

Column 1, denotes the response of standard of living (Gdppc) to its own shocks, and it is evident that it produces positive impulses on itself for the period of 10 months under review and the value fluctuated from the lowest 1.784 to the highest 7.591. Education expenditure (edexp) in column 2 emits negative impulses on standard of living all through the 10 periods with higher percentage values in the short run from period 1 (-12.249%) to period 5 (-19.784%) and fluctuated downward till the 10th period with the value (-21.911). While health expenditure (hexp) emits all negative shocks on standard of living for the 10th period under consideration with the highest value of -18.398 in period 1 and the lowest value of -3.861 in period 6. One standard deviation from consumer expenditure (coexp) to standard of living produced all negative values between zero and one, together the impulse of inflation on standard of living produces negative shocks for the ten periods. The impulse of population on gddpc produces positive impulses on living standard and the result is on column 5.

In conclusion, the result is very clear that none of our fiscal spending variables (education expenditure, health and consumer spending) were able to emit positive impulses/shocks on the standard of living Nigeria.

Table 4: The summary of impulse responses function result for objective two

Period	Column 1 gdppc/gdpp	Column 2 edexp/gdppc	Column 3 hexp/gdpp	Column 4 coexp/gdppc	Column 5 pop/gdppc	Column 6 inf/gdppc
1	7.591	-12.249	-16.114	-0.670	2.620	11.157
2	3.099	-20.317	-13.128	-0.159	3.011	-1.004
3	3.566	-25.300	-13.128	-2.234	4.026	-7.062
4	1.877	-26.839	-18.398	-1.813	3.409	-4.598
5	2.071	-19.784	-16.082	0.268	1.662	-1.637
6	5.358	-15.017	-3.861	-1.233	0.133	-0.441
7	3.922	-17.117	-9.927	-1.029	2.182	-0.108
8	1.784	-17.499	-20.114	-0.038	4.924	-2.608
9	4.181	-17.545	-10.394	-0.738	1.289	-4.631
10	4.966	-21.911	-5.996	-0.825	0.989	-2.997

Source: E-View Computation, 2019

3.5.5. Descriptive statistics

The Table 5 reveals that there is no serial correlation with the probability 0.9245.

The Table 6 indicates that there is no heteroskedasticity.

Figure 1 indicates that the model is not normally distributed.

4. POLICY IMPLICATION FOR OBJECTIVES

The VECM shows that fiscal spending on education, health, and consumer goods and services have a long run relationship with the standard of living in Nigeria, and the speed of adjustment towards equilibrium is 67.445% which is moderately high. This agrees with the conclusion drawn by Lamartina and Zaglini (2011), who found positive correlation between public spending and per capita GDP, also with Antonio and Jose (2016), then Wagner's law of increasing state activities. Beside, Morris (1987) affirmed that spending on recurrent and capital projects such as building schools, provision of good and affordable health care, provision of roads, electricity and clean water are all determinants of standard of living. Our result, suggest that fiscal spending on education, health and consumption in Nigeria have been used to improve standard of living in the long run. But in reality, is this really true when Nigeria has been found among the ten Africa country with extreme poverty which continues to bring down the living standard of her population. Below, is a Table 7 indicating the position of some Africa countries with worst case poverty rate.

In the short run, the Wald coefficient result for education expenditure indicates that in lag 1 and lag 2, there is a significant short run impact of education expenditure on standard of living in Nigeria. This is in line with our economic expectation: Standard of living is measured by GDP per Capita which means output produced with in the nation per person. And labour is referred to as human capital which is the most important factor in production. Education and skill of a person determines the demand in the labour market, therefore productivity can rise when workers are more educated. It has been proved that there is a correlation between education and standard of living and this align with human capital theory developed by Lucas (1988), but does not agree with the work done by Devarajan et al (1996).

Table 5: The serial correlation test

Breusch-Godfrey serial correlation LM test			
F-statistic	0.041759	Prob. F (2,18)	0.9592
Obs*R-squared	0.157029	Prob. Chi-square (2)	0.9245

Source: E-View Computation (2019)

Table 6: Heteroskedasticity test: Breusch-Pagan-Godfrey

F-statistic	0.574138	Prob. F (18,15)	0.8692
Obs*R-squared	13.86933	Prob. Chi-Square (18)	0.7376
Scaled explained SS	10.64006	Prob. Chi-Square (18)	0.9090

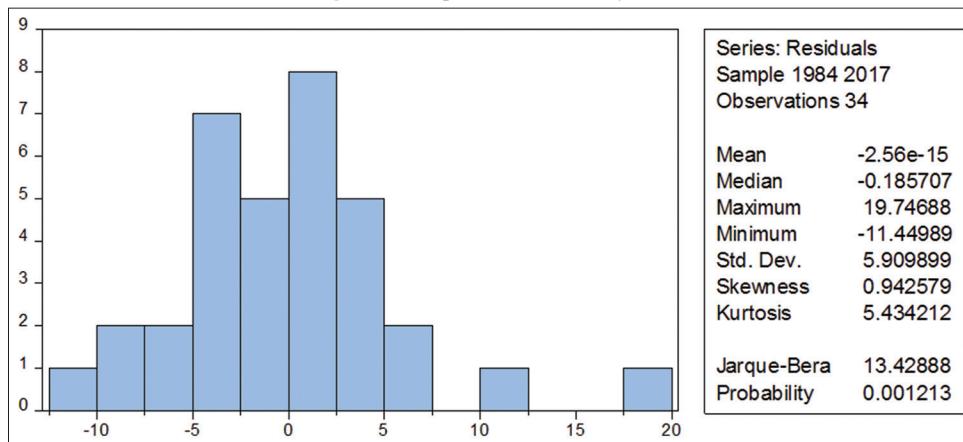
Source: E-View Computation (2019)

Table 7: Position of some Africa countries with worst case poverty rate

Country	People living in extreme Poverty (millions)	% population in extreme Poverty
Nigeria	86.9	46.7
Democratic Republic of Congo	60.9	77.0
Ethiopia	23.9	23.4
Kenya	14.7	30
South Sudan	11.4	93.0
South Africa	13.8	24.6
Zambia	9.5	57.2

Source: World Poverty Clock 2018

Moreover, the coefficient of health expenditure has a negative and insignificant impact on standard of living, this is against our a priori expectation and it could be as a result of low health expenditure. Also, this result disagree with the research conclusion of Miniar and Sami (2016), who found that health expenditure appear to be very sensitive to changes in the standard of living in France. According to Vinayak (2016), Nigeria as the biggest African economy spend less on health care than Angola, South Sudan, and Ethiopia. In 2017 budget of N7.298 trillion presented for approval, only a meagre 4.17% was allocated to health sector. In 2016, Rwanda devoted 18% of her total budget to healthcare, Botswana 17.8%, Zambia 16.4% Malawi 17.1%, therefore, Nigeria has the least of healthcare spending. so the result can be accepted as an outcome of the neglected sector's

Figure 1: Jarque-Bera Normality Test

Source: E-Vew Computation (2019)

impact on standard of living in Nigeria. Furthermore, consumer spending makes up >70% of the economy and it is a driver of economic growth but this is contrary to the result we got, in the short run there is no significant impact of consumer spending on standard of living in Nigeria.

Finally, none of our fiscal spending variables (education expenditure, health and consumer spending) were able to emit positive impulses/shocks on the standard of living Nigeria.

4.1. Policy Recommendation

- Education is an important factor to be used to fight poverty and raise standard of living, Nigeria has over the years invested substantially to improve educational sector and attainment by labours as a way of improving productivity but still faces decline in GDP and slow economic growth, therefore, this paper suggest that government should ensure that both recurrent and capital expenditure is well manage and accounted for by the policy makers.
- On health expenditure, the implications of low budget allocation of health sector on standard of living in Nigeria is obviously various, consequently, this paper suggests that there should be an improved percentage allocation to health sector budget and out pocket spending that have dominated the economy's health sector should be discouraged. Again, there should be an enhanced enabling, coordination, monitoring, and auditing of budget performances due to corrupt practices.
- Consumption is one of the key component of national income and it affects the national economy positively if well-structured through fiscal policy. On the other hand, high consumption means low savings, low investment, and low capital formation and all these results in low productivity hence low standard of living. This paper suggests that government should ensure a balance between consumption and savings through fiscal policy.

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