

Stabilization Effects of Social Spending on Economic Growth in Selected Two West African Countries

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Abstract

This study set out to investigate the stabilization effects of social spending on economic growth in two selected West African countries (Nigeria and Ghana) using time series data from 1980 to 2015. The study aimed at specifically evaluating the cyclical behaviour of social spending, the optimal size of public social spending and the efficacy of public social spending to smoothen fluctuations in output. Data were sourced from IMF's World Economic Outlook (WEO) database, the Central Banks of selected countries and World Development Indicator Database. The paper adopted Auto-Regressive Distributed Lag (ARDL) Bounds testing approach as estimation technique and error correction mechanism (ECM) within a dynamic framework. The results showed that social spending on health was pro-cyclical in Ghana and counter-cyclical in Nigeria. Social spending in education was pro-cyclical in Nigeria and counter-cyclical in Ghana. Findings of this paper also revealed that the optimal government size that will maximize growth of GDP in Ghana and Nigeria were 86.6 and 58.2 per cent of GDP respectively. This paper among others recommended that there is need for government whose expenditure in health and education are counter-cyclical to develop a framework to take care of efficient losses emanating from redistribution and leakages arising from these expenditures. This constraints could lead to decline in long-term GDP.

Keywords: Stabilization Policy, Pro-Cyclical, Counter-Cyclical, Government Expenditure, Bounds Econometric Approach

INTRODUCTION

The received literature has shown that a well-crafted macroeconomic policy could accelerate the pace of economic growth and development. This perhaps explains why most emerging and developing countries have departed from the laissez-fair economic dictum to Keynesian typed approach as the recipe for economic growth. Monetary, trade and fiscal policies and in some cases, policy mix are in this menu of choices. Stabilization policies could be a set of measures introduced to smoothen an economy. Social spending is an integral part of stabilization process and it introduces a number of changes in the expenditure pattern of governments. Government social spending on health and education is expected to play a critical role of ensuring stability and hence economic growth.

Nigeria and Ghana have adopted a number of stabilization policies to accelerate the pace of economic growth and development and smoothen oscillation in business cycle. It appears Ghana and Nigeria have not achieve the desired threshold in terms of their major economic indicators – growth, inflation, and unemployment. These economies are characterized by huge budget deficits and slow growth rates. Periods of

reasonable growth rates are not translated to development, rather, deteriorating balance of payments, high rates of unemployment and low levels of savings and investment.

This paper seeks to investigate the behaviour of government social spending on economic growth. That is, whether or not they are counter-cyclical, pro-cyclical or cyclical in Ghana and Nigeria. The paper also inquire into the optimal size of government spending on education and health and if these expenditures smoothen out fluctuations in GDP. The product of this inquiry will assist in building the capacity of public policy management.

LITERATURE REVIEW AND THEORETICAL ISSUES

Cyclical of fiscal policy is a well-studied and researched area. Conventional macroeconomic knowledge says that fiscal plan should act as a stabilizing policy tool by counteracting business routine fluctuations via increasing expenses and reducing taxes during recessions. There is intensive literature on the issue of cyclicity of fiscal policy in

general, including its implications for macroeconomic balance and growth. The cyclical nature of fiscal plan in addition has been analysed in a cross-country construction. Fiscal policy has mainly been observed to be counter-cyclical in advanced economies. On the contrary, empirical evidence signified a pro-cyclical behaviour of fiscal plan in developing countries, demonstrating thus that fiscal policy tends to expand in intervals of economic development ('good times') while it contracts during recessions or slowdowns ('bad times') Lane (2003).

Since the 60's, economists have had different opinions on the influence of government expenditures on economic growth. Extensive research has been performed in an attempt to gauge the level to which federal government spending (GS) affected economic growth (EG). Theoretically speaking, the pendulum is a mix bag, depending on theoretical extraction of the scholars. From an empirical perspective, however, the evidence generated suggests that GS is like the biblical proverbial two-edged sword, implying that it can cause stability or instability to the economy of a nation (Alexiou, 2009). Many of this divergent opinion have been driven by different analytical techniques.

Empirical study conducted by Blanchard and Perotti (2002) found some evidences to support Keynesian view of a positive government spending shock on output, indicating that government spending has a positive effects on economic growth of rising and low income countries of the Sub-Saharan Africa. Torruam (2014) paper showed the sensitivity of provincial authorities finances to regional business cycles in eight Federal Republics including India. Inside a panel framework, using data for 14 major states for 1980-98, both revenues and expenses for India were found to be pro-cyclical. Whereas revenue-sharing and discretionary transfers were either a cyclical or pro-cyclical. Based on these results, the paper concluded that a move towards decentralization in developing countries would heighten overall pro-cyclicality, especially of health, education and public expenditures.

In a report of 21 OECD countries studied using data from 1982-2003, Darby and Melitz (2008) found that some fiscal expenditure on social activities such as health, retirement benefits, incapacity and sick pay and unemployment compensation responded in a stabilizing manner to business cycle fluctuations. Furceri (2009) empirically assessed the ability of social spending to simple shocks in output. The study found out that interpersonal spending was capable of smoothing out up to 15 percent of shocks in GDP. The study also found that social spending in the areas of health, old age benefits and unemployment was more effective and that these smoothing capability of cultural spending in countries with larger percentage of their income

devoted to social expenditures, and for those countries for which public spending was quite stable.

Baxa (2010) reported similar results for Czech Republic as Blanchard and Perotti (2002). The paper showed that federal government expenditures had a positive effect on economic activity. Furceri and Zdzienicka (2010) paper on the effects of social spending on financial activity using data from 1980 to 2005 indicated that interpersonal spending had an expansionary influence on GDP. That means that, interpersonal expenditure continued to impact on the GDP on a long term basis. Explicitly, the analysis established a one percent expansionary increase of sociable spending on GDP in a proportionate manner. The analysis also substantiated the findings of Kraay (2012), showing that the stimulus was stronger in periods of economic downturn matching to a multiplier of 0.6. On the subcategories of social spending, the empirical review showed that this was more powerful with health and unemployment benefits.

Dilrukshini (2002) used quarterly data with the aid of VAR-based identification to sample twenty-seven economies. The study found that the size of government spending multiplier was 0.3. The paper also showed that forevery additional money expended, generated a return or additional interest of about \$0.4 and \$0.5. However, when such spending multipliers are less than one, it suggest that increasing federal government spending is at the risk of crowding out other spending forms such as open public investments. Structural VAR modelling was employed by Darby (2008) to examine the consequences of fiscal policy on real GDP for a group of countries in OECD. The results demonstrated that a shock of one percent from government spending (purchases) increase real GDP by 0.6 percent after nine months. However, this stimulus was found to be unsustainable as the effect relapsed to zero after twenty-four months. Biswajit (2012) examined the cyclical behaviour of public spending on health insurance and education in 150 countries (both developed and developing), covering the time period 1987-2007. Empirical results of the study showed that total cultural spending was pro-cyclical in developing countries both good and bad times, but more robust in good times. As it concerned education and health expenditures, an asymmetric pattern was noticed, implying therefore that they were pro-cyclical during intervals of positive output gaps, but cyclical during periods of negative result gaps. Furthermore, the degree of cyclical nature was observed to be higher the lower the level of economic development.

Simovic and Desker-Skrbic (2013) tested for evidence of output response to fiscal shocks, and also for Croatia from 1990-2001. The analysis showed that by spending 0.82 responded highly and favourably with a multiplier

effect of 2.18 percent. Oriavwote (2015) analysed the correlation between consumption costs, fiscal adjustment and growth. The study used econometric model based on GMM that examined the effects of several fiscal variables - fiscal deficit and the composition of budget on real GDP growth for thirty-nine countries and found that modification in fiscal plan did not dampen growth. In fact, a 1 percent change in the fiscal balance boosted GDP by 0.3 percent. Predicated on the results, the authors suggested that to be effective, fiscal policy needs to be tailored to the specific financial conditions of a country.

Neicheva (2008) carried out a time series analysis to assess the stabilization effects of fiscal policy for Croatia following the methodology employed by Blanchard and Perotti (2002), under the platform of structural VAR. The results also found support for the Keynesian proposition. Specifically, the analysis reveals that fiscal transmission mechanisms works mainly in a manner proposed by Keynes as output reacts positively to public spending shocks, which become more pronounced in the case of general public investment spending. Furthermore, empirical studies of Ramey (2011) demonstrated that fiscal multipliers are not constant but tend to vary with certain characteristics present in the overall economy at that time. These characteristics include the state of monetary plan and the stance of business cycle. Woo (2009) discovered that the stimulative effect of spending is more powerful in countries that are less open. One of the key tenets of macroeconomic plan is that fiscal policy instruments can be used in the medium term to stimulate aggregate demand and thus revive an economy under recession. However, studies have emerged showing that this might be the reverse in certain circumstances where public debts are large.

Rzonca and Cizkowicz (2005) investigated the association between fiscal stimuli and short run real development and found evidence for non-Keynesian proposition. The study found that drivers for real short run growth were fiscal restrictions through expenditure cuts. Vladimirov, and Neicheva (2008) paper showed that federal government spending had a negative romantic relationship with real growth rate. Their findings corroborated previous studies that supported the argument that the effect of government spending could contrast Keynesian submission.

Akpan (2013) had employed a disaggregated method to investigate how the various components of government's expenditure (such as; capital, recurrent, administrative, economic service, public and community services, and transfers) effect economic development. The paper found no significant association existing between most of the different parts of social expenditure, as well as financial growth in

Togo. Taban (2010) examined the link between public spending and financial growth using bounds testing approach and MWALD Granger causality test. The paper revealed that the share of social spending to GDP had long run significant negative effects on economic development. Devarajan, Snoop and Zou (2010) paper revealed that there was a significant negative relationship existing between the compositions of interpersonal expenditure and growth of real GDP per capita.

Empirical evidences about the stabilizing effects as well as the sizes of government spending multipliers in developing economies are scanty. The section ahead concentrated specifically on empirical worked that are specific to the case study economies. Based on the error correction technique and cointegration, Owusu-Nantwi (2015) examined the impact of an element of public spending (education) on the growth of the economy of Ghana using data from 1970 to 2012. The findings from the study did not only prove that there was a positive relationship between the variables, but that the relationship was very significant.

Olugbenga and Owoye (2007) paper revealed a long run significant relationship between social expenditure and financial growth in the countries investigated. The result also showed a unidirectional causality of the expenditure of government to the growth of the economy of 16 countries out of the total number of countries studied. Their findings thus support the Keynesian proposition. Ezirim and Ofurun (2012) found that the outcome of social spending was very strong even in balanced budget situations. The paper supported the argument that social spending on education and health has significant effect on the stabilisation of the economy in both short run and long run. Bose (2013) also carried out a study to determine the effect of government (public) expenditure on economic growth and found a high significant effect of government expenditure on the growth of the economy. Dilrukshini (2012) evaluated the relationship between social expenditure and the growth in the economy of Sri Lanka between 1952 and 2002, with the application of Johansen co-integration technique and Granger causality test found no significant relationship between social expenditure and economic growth in Sri Lanka.

Ogundipe and Oluwatobi (2013) attempted to investigate if there is any significant relationship between federal government spending and financial development in Nigeria from 1970 to 2009. The paper showed the existence of a positive relationship between components of government interpersonal spending (health and education) and growth in Nigeria. Oriavwote and Eshenake (2015) paper showed that in addition to petroleum revenue tax and external debt, government spending influences economic growth

positively and significantly. Musaba, Chilonda and Matchaya (2013) empirically investigated “the impact of federal government sectorial expenses on economic development in Malawi, 1980-2007” to determine whether government social spending has any significant relationship with economic growth. They found no significant relationship between spending on social activities (education, health and culture) and GDP, which was proxy for development.

Oni (2014) paper evaluated growth impact of health expenses using a multiple regression analysis. The findings of this paper indicated that total expenditure on health, gross capital formation, as well as productivity were key determinants of economic development in Nigeria. Jiranyakul and Brahmasrene (2007) investigated the relationship between government expenditures on social and economic growth in Thailand between 1993 and 2006. The result showed the existence of significant relationship between the variables and a unidirectional causality of the expenditure made by the government to economic growth without feedback.

Afonso, and Jalles (2012), disaggregating the federal government spending on economic development into functional and economic categories, using time series data between 1969 and 2008. The results revealed significant positive correlation of capital expenses, agriculture, housing and community, road, communication and health expenditures with growth. Acheampong and Barkers-Okwan (2015) aggregated government expenditure and economic growth to show that government expenditure had retarded economic growth. The paper also showed that government expenditures on health insurance and infrastructure impacted positively on economic growth. There was no significant positive impact of government expenditure on education as there were on economic and financial growth within a short term. This implied that the impact of government expenditure on education is a long run phenomenon.

In a study of 21 OECD countries carried out from 1982 to 2003 by Darby and Melitz (2008) showed that some fiscal expenses in health, pension benefits, incapacity and payment for ill health and unemployment compensation showed stabilizing effect on business cycle fluctuations. Furceri (2009) evaluated the ability of sociable spending to even shocks in GDP. The study indicated that spending on cultural activities had the capacity to smoothen out 15 percent of shocks in GDP. The study also established that public spending on the health care services had stabilisation effects on the growth of the economy.

There is a gap in empirical literature with regard to the cyclical properties of state spending on social services.

Recognizing this gap, this research attempts to analyse the cyclical properties of state spending on social sectors like education and health. Studies conducted about the stabilization effect of social spending in advanced countries have shown that social spending by government have assisted in the stability of industrialized economies. Few studies have attempted to evaluate the relative stabilization effect of government social spending on middle and low income countries. Based on this observed gap this study therefore undertakes an investigation into the stabilization effect of government social spending in selected two West African countries-Ghana and Nigeria.

Model Specification

The theoretical underpinning of this paper follows an eclectic approach. This paper draws insight, methods and techniques from a number of studies including Akitoby, Clement, Gupta & Inchauste, (2004); Alesina, Campante & Tabellini (2008); Arena & Revilla, (2009) etc. Multiple regression technique was used to determine the relationship between social spending and economic growth for Ghana and Nigeria.

Cyclicity of Social Spending

Cyclicity defines the behavioural pattern of government social spending in relation to output. Several studies have adopted three basic approaches to measuring this cyclical nature of public spending: a correlation-based approach, an elasticity-based approach as indicated by the cyclicity coefficient and the error correction approach (Afonso&Jalles, 2012). The first approach focuses on estimating the correlation coefficient between output and cyclical components of government spending. The second approach estimates the elasticity of the government spending components in relation to output through a time series regression analysis while the third approach uses the two stage technique which predicts the co-movements between the spending variables and component of output within an error correction framework.

Government expenditure on education and health has been justified in endogenous growth theory (Aghio 2000). In the endogenous growth model, technological progress, which increases productivity and accelerates the pace of growth, can be determined within the model through the formation of human capital. Spending on education and health helps promote efficiency, knowledge and inventions, all of which contribute to the economic growth of a country.

Based on the premise that spending on education and health care may promote output growth through the channel of human capital. We state the relationship between output and spending on education and health care as follows:

$$Y_t = A E_t^\alpha H_t^\beta U_t; \quad \alpha, \beta > 0 \quad 1.1$$

Equation (1.1) is a Cobb-Douglas production function, where Y_t is output (GDP) per unit of labour, A is total factor productivity, E_t is the spending on education and H_t is the spending on health care, while α and β are the shares of education and health-care spending respectively. U_t is the error component that is assumed to be well behaved.

Taking the logarithm of both sides, we obtain

$$\ln Y_t = \ln A + \alpha \ln E_t + \beta \ln H_t + \ln U_t \quad 1.2$$

Differentiating equation (1.2) with respect to “t”, we have:

$$Y_t = A + \alpha E_t + \beta H_t + \varepsilon_t \quad 1.3$$

Where Y , E and H are output growth, education expenditure and health-care expenditure respectively and ε_t is the error term.

Equation (1.3) asserts that output growth (GDPGR) depends on education expenditure (EDU) and health-care expenditure (HLT). The impact of education and health-care expenditure on output growth may persist beyond the current period. We also incorporated total debt as a percentage of GDP (DEBT). Thus, rendering the model dynamic and at the same time taking cognizance of the panel nature of our model, we obtain the estimable equation in log linear form:

$$\text{LGDPCR}_{it} = \theta_0 + \theta_1 \text{LEDUT}_{it-1} + \theta_2 \text{LEDU}_{it-1} + \theta_3 \text{LDEBT}_{it-1} + \varepsilon_t \quad 1.4$$

Optimal Size of Government Spending

The determination of the optimal size of government social expenditure equation is abstracted from the model developed by Husain (2011). The model estimates the share of government spending that maximizes real economic growth. Following the exposition of the model, the production function is specified in Cobb-Douglas form as:

$$Y = a (G_{t-1})^b [(1 - \tau_{t-1}) Y_{t-1}]^c \quad 1.5$$

Where:

Y = real GDP;

G = total government spending;

τ = total tax rate in the economy measured as the share of government spending as a percentage of GDP.

A balanced-budget assumption is made that $G = \tau Y$ each year. By substituting this assumption in equation (1.5), we obtain:

$$Y_t = a (\tau_{t-1} Y_{t-1})^b [(1 - \tau_{t-1}) Y_{t-1}]^c \quad 1.6$$

By finding the first and second differential of Y with respect to τ , Husain (2011) showed that the maximum real output is derived when government spending as a share of GDP equals the following:

$$\tau^* = \frac{b}{b+c} \quad 1.7$$

Equation 1.7 defines the optimal size of government spending. Thus, we use the following equation to estimate the optimum level of government spending:

$$\ln(y_{i,t}) = \ln(a) + b \ln(\tau_{i,t-1} Y_{i,t-1}) + c \ln[(1 - \tau_{i,t-1}) Y_{i,t-1}] \quad 1.8$$

Where:

The index i indicates the country, the index t indicates the period ($t = 1980 \dots 2015$); i, t y is real GDP per capita for i country in year t .

Following Husain (2011) model, this study specifies the specific optimal size of government equation in its functional form as follows:

$$\text{LGDP} = f(\text{Gsize}, \text{REVT}) \quad 1.9$$

Where:

GDP = per capita gross domestic product in the sampled countries;

Gsize = government size, measured by the percentage of government spending in total gross domestic product in the respective countries;

REVT = tax revenue as a percentage of GDP in the sampled countries.

The econometric form of the equation in its linear form is written as:

$$\text{LGDP}_{it} = \beta_0 + \beta_1 \text{LGsize}_{it} + \beta_2 \text{LREVT}_{it} + \varepsilon \quad 1.10$$

Where: β_0 to β_2 are the parameters to be estimated and ε is the stochastic error term.

The expected signs of the parameters are as follows: $\beta_1, \beta_2 > 0$.

Stabilizing Effects of Government Social Spending

To be considered as stable, the fiscal balance (in this case the value of social spending) would need to increase when output increases and vice versa. That way, social spending as a discretionary fiscal policy would generate the necessary aggregate demand when productivity is weak and decrease demand during periods of boom. As a result, a measure of the stabilizing or destabilizing role of social spending (education and health) is the average change in the overall social expenditure balance (as a percent of GDP) that is linked to a percent change in output (IMF, 2015). The stabilization coefficient is stabilizing when the response of output (GDP) to social spending is positive and destabilizing when this coefficient is negative. It is a useful metric to gauge the role fiscal policy plays in stabilizing output. Thus, the stabilization coefficient is a measure of the relationship

between change in policies as implemented and the effect it has on output.

IMF (2015,) stated that “the stabilizing role of fiscal policy can be assessed by estimating the impact of changes in the output gap on the overall fiscal balance”. In this case government social spending is adjusted for cyclical by deducting an indicator of cyclical government social spending which is made up of the country-specific expenditure “sensitivity” parameter multiplied by the gap in output. This ‘sensitivity’ parameter captures the monetary value changes in spending associated with a unit monetary change in the difference between actual and potential output as a result of the fiscal policy (Social spending). Following the work initiated by Romer (1989), Furceri (2009) and Furceri and Zdzienicka (2010), we begin the analysis to estimate the effects of social spending on growth by estimating a dynamic growth equation from which the impulse response functions of the estimated coefficients would be derived. The equation is of the following form:

$$\Delta y_{it} = a_i + b_t + \sum_{j=0}^3 \delta_j \Delta s_{it-j} + \gamma^i X_{it} + \varepsilon_{it} \quad 1.11$$

Where y is output in log form, s is aggregate social spending (or its sub-categories) in log form and a_i and b_t is country fixed effects and time effects respectively. X represents the vector of control variables which has the capacity to influence growth in the short run.

$$\Delta y_{it} = a_i + b_t + \sum_{j=0}^3 \beta_j \Delta y_{it-j} + \sum_{j=0}^3 \delta_j \Delta s_{it-j} + \gamma^i X_{it} + \varepsilon_{it} \quad 1.12$$

As depicted by a growing number of empirical evidence, several categories of social spending might react to the economic cycle differently and several components of social spending such as unemployment benefits, spending on health and pensions are counter-cyclical (Darby & Melitz, 2008). Based on this, it becomes likely that with the assumption that δ_j has positive values, then it means equations (1.11) and (1.12) will depicts opposite coefficients in both spending and growth which implies that scaling the equation with a simple OLS will be biased. To deal with this issue (endogeneity) we will estimate a policy rule for social spending that enable us determine shocks in government spending (Fatas & Mihov, 2006; Corsetti & Mueller, 2010; Furceri & Zdzienicka, 2010). Thus we estimate each country’s fiscal reaction functions as follows:

$$\Delta s_{it} = a_i + Trend_t + \sum_{j=1}^2 \alpha_j s_{it-j} + \sum_{j=0}^2 \theta_j \Delta y_{it-j} + \varphi^i Z_t + \varepsilon_t \quad 1.13$$

Where ‘ Z ’ represents a set of control variables. The procedure involves an estimation of the above equation

for each country and the residuals of each country’s regression, i.e. ε_t are then made use of in the next step to estimate the social spending output smoothening effects using the following regression:

$$\Delta y_{it} = a_i + b_t + \sum_{j=0}^3 \beta_j \Delta y_{it-j} + \sum_{j=0}^3 \delta_j \varepsilon_{it-j} + \gamma^i X_{it} + \varepsilon_{it} \quad 1.14$$

Where Δy_{it} is growth in the GDP which proxies gap in output, ε_{it} residual obtained for each country, X represents a set of control variables. Based on Keynesian theory of public expenditure, government should intervene to correct the short-run shocks in the business cycle. He was of the opinion that discretionary policy is a veritable tool of curbing depression in short run. If this is the case we, can state the relationship between gross domestic product and spending on education, health, trade openness in an equation form.

$$GDPC = f(HLT, EDU, GSIZE, OPEN, EXR, DEBT) \quad 1.15$$

Where:

GDPC = per capita gross domestic product in the i^{th} country;

HLT = health expenditure in the i^{th} country;

EDU = education expenditure in the i^{th} country;

GSIZE = government size, represented by the ratio of government expenditure in total GDP in the i^{th} country;

OPEN = trade openness, defined as imports + exports divided by GDP in the i^{th} country;

EXR = exchange rate in the i^{th} country;

DEBT = debt to GDP ratio in the i^{th} country.

The econometric form of equation 3.16 can be expressed as:

$$LGDP = \omega_0 + \omega_1 HLT + \omega_2 EDU + \omega_3 GSIZE + \omega_4 OPEN + \omega_5 EXR + \omega_6 DEBT + u \quad 1.16$$

Where: ω_0 to ω_6 are the parameter estimates of the model that numerical values are to be provided and u is the error term. The a priori expectations about the signs of the coefficients are as follows: $\omega_1, \omega_2, \omega_3, \omega_4 > 0$; and $\omega_5, \omega_6 < 0$.

Descriptive Analysis

This section presents the descriptive statistics for the variables for each of the two selected countries. To ensure uniformity of measurement, data for the variables were retrieved from the same source for all the countries and uniform unit of measurement (\$US, percentages and rates) were used. In tables 1 and 2, we present the country-specific descriptive statistics for all the variables employed. This is necessary for comparisons. In summary, we show the mean, maximum, minimum, standard deviation as well as the skewness. The full result is shown in the appendix.

Table 1: Descriptive statistics for Ghana

Variable	N	Mean	Max.	Min.	Std. Dev.	Skewness
RGDPC	36	1553	2923	807	651	0.72
GDPGR	36	4.77	10.07	-6.92	3.63	-1.51
HLT	36	4.98	13.32		2.35	1.86
EDU	36	9.99	11.99		7.92	1.43
PG	36	2.52	3.52		1.79	0.47
OPEN	36	74.12	131.69		6.32	41.20
EXR	36	0.59	2.20		0.0003	0.69
DEBT	36	4.91E+09	8.52E+09	1.40E+09	2.05E+09	-0.22
GSIZE	36	14.57	32.65		5.86	7.21

Source: The Researcher's Computation

Table 1 shows the descriptive statistic of all the variables in Ghana. The mean of the data indicates that the average real GDP per capita in Ghana was \$1553.06m for the period 1980 – 2015, larger than ECOWAS and WAMZ values. The growth rate of GDP (GDPGR) on average was 4.77% still higher than the values for ECOWAS and WAMZ. The results shows that the mean health and education expenditures were \$4.98m and \$9.99m. For the government size, the result indicates that the mean value was 14.57 percent. Trade openness which is level of total exports and import in the GDP was 74.12 percent, while the average population growth has a mean value of 2.52 percent.

The standard deviation indicates how concentrated the data is around its mean values; the results shows that the variables GDPGR, HLT, EDU, PG and EXR are greatly concentrated around the mean. This implies that they do not deviate significantly from their mean. The skewness values for all the variables are nearly zero and fall within the acceptable range, with GDPGR, EDU, OPEN and DEBT having negative signs, indicating skewness to the left while the other variables (RGDPC, HLT, PG, EXR and GSIZE) with positive signs are skewed to the right.

Table 2: Descriptive statistics for Nigeria

Variable	N	Mean	Max.	Min.	Std. Dev.	Skewness
RGDPC	36	1054	1503		592	303
GDPGR	36	3.75	10.60		-13.13	4.66
HLT	36	5.08	17.63		2.10	3.50
EDU	36	7.95	17.77		3.16	3.35
PG	36	2.48	2.96		2.18	0.18
OPEN	36	55.71	81.81		23.61	15.09
EXR	36	69.44	192		0.55	66.29
DEBT	36	2.37E+10	3.78E+10	7.63E+09	8.87E+09	-0.33
GSIZE	36	9.60	17.94		4.83	3.55

Source: the researcher's computation

Table 2 shows the descriptive statistic of all the variables in Nigeria. The mean of the data indicates that the average real GDP per capita in Nigeria was \$1053.59m for the period 1980 – 2015, less than the WAMZ value. The growth rate of GDP (GDPGR) on average was 3.75% less than the WAMZ value but higher than for ECOWAS value. The results show that the mean health and education expenditures were \$5.08m and \$7.95m. For the government size, the result indicates that the mean value was 9.60. Trade openness which is level of total exports and import in the GDP was 55.71 while the average population growth has a mean value of 2.48 percent.

The standard deviation indicates how concentrated the data is around its mean values; the results shows that the variables GDPGR, HLT, EDU and PG are greatly concentrated around the mean. The skewness values for all the variables are nearly zero and fall within the acceptable range, with RGDPC, GDPGR, OPEN and

DEBT having negative signs, indicating skewness to the left while the other variables (HLT, EDU, PG, EXR and GSIZE) with positive signs are skewed to the right.

Stationarity Tests

The preliminary step of the analysis involves a determination of the time series properties of the various variables in the various models as specified in chapter three. The unit root tests are done at univariate level, using the Augmented Dickey Fuller (ADF) and the Phillips-Peron (PP) approaches Under the null hypothesis of the presence of unit root, the results are shown in tables 3 and 4. In table 3 the paper presents the time series properties of variables for Ghana. The test is conducted using both ADF and PP unit root approaches. The unit root test is based on three assumptions (1) the series has constant term only (2) the series has both constant term and trend (3) the series has no constant term and trend. However, our decision is based majorly on the first assumption, otherwise stated. Under the null hypothesis that a series

has a unit root, we reject the null of if the probability value is less than 0.05 (5%) or 0.10 (10%), otherwise we accept the null. The result shows that all the variables except exchange rate (EXR) are difference stationary, that is, they are I(1) processes. While exchange rate is level stationary, that is I(0) processes. Thus, we can safely conclude that there is no unit root among the variables of the models utilized for the research in relation to Ghana.

In table 4 the time series properties of variables for Nigeria is presented. The test is conducted using both ADF and PP unit root approaches. The result shows that all the variables except GDP growth rate (GDPGR) are difference stationary, that is, they are I(1) processes. While GDPGR is level stationary, that is I(0) processes. Thus, we can safely conclude that there is no unit root among the variables of the models utilized for the research in relation to Nigeria.

Table 3: Unit root for Ghana

Variables	Level		First difference		I(d)	
	ADF	PP	ADF	PP		
LRGDPC	1.4874 (0.9989)	(0.9990)	1.5106 (0.0027)	(0.0006)	-4.1711***	-4.6889*** I(1)
LGDPCR	1.6662 (0.9993)	(0.3621)	-1.8262 (0.0014)	(0.0000)	-4.4717***	-6.9222*** I(1)
LHLT	-2.3907 (0.1515)	-2.3266 (0.1696)	-6.4478*** (0.0000)	(0.0000)	-6.4538***	I(1)
LEDU	-0.7567 (0.8188)	-0.6945 (0.8352)	-6.2985*** (0.0000)	(0.0000)	-6.3213***	I(1)
LPG	0.7187 (0.9903)	-0.3662 (0.9042)	-3.5024** (0.0161)	-5.2796*** (0.0001)		I(1)
LOPEN	-1.1680 (0.6771)	-1.1934 (0.6663)	-5.3232*** (0.0001)	(0.0001)	-5.3543***	I(1)
LEXR	-3.6255** (0.0102)	-7.1038*** (0.0000)				I(0)
LDEBT	-1.8821 (0.3365)	-1.9716 (0.2974)	-6.2854*** (0.0000)	(0.0000)	-6.2821***	I(1)
LGSIZE	0.3874 (0.9795)	0.0086 (0.0064)	-3.8151*** (0.0000)	(0.0000)	-3.7860***	I (1)
Critical values:		@level		@difference		
1%		-3.6329		-3.6394		
5%		-2.9484		-2.9511		
10%		-2.6129		-2.6143		

Note: ***, ** and * denote significant at 1%, 5% and 10% significant level respectively, probability value in bracket

Source: the researcher's computation

Table 4: Unit root for Nigeria

Variables	Level		First difference		I(d)	
	ADF	PP	ADF	PP		
LRGDPC	-1.1972 (0.6646)	-1.1952 (0.6655)	-5.3987*** (0.0001)	(0.0001)	-5.4121***	I(1)
LGDPCR	-4.9412*** (0.0003)	-5.1436*** (0.0002)				I(0)
LHLT	-1.9947 (0.2877)	-2.1053 (0.2448)	-5.9008*** (0.0000)	(0.0000)	-5.9007***	I(1)
LEDU	-2.1053 (0.2439)	-2.1053 (0.2439)	-5.9572*** (0.0000)	(0.0000)	-5.9544***	I(1)
LPG	0.4938 (0.9839)	-1.8637 (0.3449)	-10.1203*** (0.0000)	(0.0040)	-4.001***	I(1)
LOPEN	-2.0049 (0.2835)	-2.0049 (0.2835)	-7.9129*** (0.0000)	(0.0000)	-7.8406***	I(1)
LEXR	-1.8491 (0.3515)	-1.8535 (0.3495)	-5.0288*** (0.0002)	(0.0002)	-5.0288***	I(1)
LDEBT	-2.5486 (0.1135)	-2.3965 (0.1500)	-4.2992*** (0.0019)	(0.0043)	-3.9727***	I(1)
LGSIZE	-4.9037*** (0.0004)	-2.5946 (0.1036)	-6.5337*** (0.0000)	(0.0000)	-6.5673***	I(1)
Critical values:		@level		@difference		
1%		-3.6329		-3.6394		
5%		-2.9484		-2.9511		
10%		-2.6129		-2.6143		

Note: ***, ** and * denote significant at 1%, 5% and 10% significant level respectively, probability value in bracket

Source: the researcher's computation

Cointegration Analysis

Next, we test for the existence of long run relationship among the variables in the models. The cointegration test is conducted at univariate level. Given the nature of our series, the ARDL Bound testing approach to cointegration is employed. The ARDL Bound test approach has a number of features that gives it some advantages over the approach suggested by Engel-Granger (1987) and the maximum likelihood based approach proposed by Johansen and Juselius (1990) and Johansen (1991). Firstly, it can be used with a

mixture of I(0) and I(1) data, that is, it can be used whether the variables are mutually cointegrated or not. Secondly, it involves just a single-equation set-up, making it simple to implement and interpret. Thirdly, different variables can be assigned different lag-lengths as they enter the model. And, the model can be tested by using the OLS (ordinary least square) once the order of ARDL has been recognized (Pesaran & Shin 1999; Pesaran et al 2001). In addition, the technique addresses the problem of endogeneity.

Table 5: ARDL Bounds test for Ghana

Equation	I(0) bound		I(1) bound		F-Statistic
Model 1: cyclical					
LHLT = f(LRGDPC, LDEBT)	5.15	6.36	7.28***		
LEDU = f(LRGDP, LDEBT)	5.15	6.36	6.25***	2.21	
Model 2: optimality					
LRGDPC = f(LGFSIZE, LREVT)	4.29	5.61	6.25***		
Model 3: fluctuation					
LRGDPC = f(LHLT, LEDU, LGFSIZE, LOPEN, LEXR, LDEBT)	3.74	5.06	4.24		

Note: *** denotes significant at 1% significant level

Source: the researcher's computation

Table 5 presents test for the possibility of long run relationship among the variables in each of the three models (the cyclical model, the optimality model and the fluctuation model) using the ARDL Bounds Testing approach to cointegration for Ghana. The test utilizes the I(0) and I(1) bound and compares the values with wald F-statistic. Under the null hypothesis of no long-run relationship, there are three cases: Case 1: Reject H0 if the F-value is greater than the upper bound; Case 2: Accept H0 if the F-value is less than the lower bound and Case 3: Inconclusive if the F-value

falls between the lower and upper bounds. The results revealed that in the cyclical and optimality models, HLT and RGDPC and their respective fundamentals are cointegrated. While EDU and its fundamentals are not cointegrated in the cyclical model, there is inconclusive evidence of cointegration in the fluctuation model between RGDPC and its fundamentals. Hence, we conclude that the evidence of cointegration is mixed for Ghana.

Table 6: ARDL Bounds test for Nigeria

Equation	I(0) bound		I(1) bound		F-Statistic
Model 1: cyclical					
LHLT = f(LRGDPC, LDEBT)	5.15	6.36	13.82***		
LEDU = f(LRGDP, LDEBT)	5.15	6.36	5.83***		
Model 2: optimality					
LRGDPC = f(LGFSIZE, LREVT)	4.29	5.61	6.36***		
Model 3: fluctuation					
LRGDPC = f(LHLT, LEDU, LGFSIZE, LOPEN, LEXR, LDEBT)	3.74	5.06	7.55***		

Note: *** denotes significant at 1% significant level

Source: the researcher's computation

Table 6 presents test for the possibility of long run relationship among the variables in each of the three models (the cyclical model, the optimality model and the fluctuation model) using the ARDL Bounds Testing approach to cointegration for Nigeria. The results showed that the variables in each of the four equations share long-run relationship since the F-statistic is greater than the upper bound [I(1) bound] in

each of the models, hence, the conclusion that variables in each of the models share long run relationship.

Behaviour of Government Spending

Attempt is made here to examine the behaviour of government expenditure in Ghana and Nigeria. Specifically, the paper investigate whether the effect of GDP per capita on government expenditure on health and education is pro-cyclical, counter-cyclical or a-cyclical.

Table 7: Cyclical coefficients of social spending in Ghana

Dependent Variable: LGDPGR

Variable	Coefficient	Std. Error	t-stat.	P-value
LGDPGR(-1)	0.1663	0.1159	1.4354	0.1704
LGDPGR(-2)	-0.0482	0.1079	-0.4471	0.6608
LGDPGR(-3)	-0.0292	0.0971	-0.3003	0.7678
LGDPGR(-4)	0.1362**	0.0517	2.6333	0.0181
LEDU	-0.5761*	0.3037	-1.8968	0.0761
LEDU(-1)	1.3041***	0.2554	5.1054	0.0001
LHLT	-0.1907**	0.0581	-3.2825	0.0047
LHLT(-1)	0.06968	0.1017	0.6852	0.5030
LHLT(-2)	0.0814	0.0931	0.8743	0.3949
LHLT(-3)	-0.1043	0.0721	-1.4454	0.1676
LDEBT	0.0727	0.0579	1.2568	0.2269
LDEBT(-1)	-0.0335	0.0847	-0.3953	0.6979
LDEBT(-2)	-0.1728*	0.0946	-1.8269	0.0864
LDEBT(-3)	0.0942	0.0751	1.2547	0.2276
LDEBT(-4)	-0.1027**	0.0443	-2.3206	0.0338
Cons	4.0547***	0.7742	5.2374	0.0001
ECM(-1)	-0.7749***	0.1468	-5.2785	0.0001
R-squared = 0.92 F-stat = 12.43 (0.0000) DW = 2.10				

Note: ***, **and * denote significant at 1%, 5% and 10% significant level respectively

Source: the researcher's computation

Table 7 shows that in the first and fourth year, GDP growth improves current GDP growth while the effects are reduced after the second and third year. There is a strong evidence of counter-cyclical of government spending in education and pro-cyclical in health in Ghana. The impact of government spending in education and health on GDP growth in the current year is negative and statistically significant at the 10 percent and 5 percent significant level respectively. It becomes pro-cyclical in health in the first and second year, for education, expenditure is pro-cyclical in the first year. One percent rise in education in the current year of the expenditure will cause GDP growth to fall by about 0.58 percent.

The result also indicates that after the first year, the impact of government spending in education and health on GDP growth assumes positive. In the current year, debt has positive, though statistically insignificant impact on GDP growth in Ghana. The general F-value suggests that all the partial coefficients are not simultaneously equal to zero and hence statistically significant at 5 percent. At 92 percent, the R²-square obtained is satisfactorily high, implying that the model explains about 92 percent of the variation in health expenditure around its mean. The Durbin-Watson test for first order serial correlation shows that the error terms are not serially correlated since it is approximately equal to two. The values of the R-Square and Durbin-Watson also indicates that the OLS result is not spurious.

Table 8 shows that in the first and third year, GDP growth improves current GDP while the effects become minimal after the second and fourth year. There is a strong evidence of both pro-cyclical and counter-cyclical of government spending in education and health in Nigeria respectively. While government spending in education in Nigeria is pro-cyclical, government spending on health is counter-cyclical. The impact of government spending in education on GDP growth in the current year is positive and statistically significant at the 1 percent while the impact of health expenditure on GDP growth is negative and insignificant. One percent rise in education and health expenditure will cause GDP growth to rise or fall by about 0.38 percent and 0.17 percent respectively.

The result further indicates that after the first and second year, the impact of education spending on GDP growth remains positive and assumes negative after the third and fourth year. The impact of health spending on GDP growth remains negative after the first year and it is statistically significant at 5 percent level. In the current year, debt has positive, though has a statistically insignificant impact on GDP growth in Nigeria. The general F-value suggests that all the partial coefficients are not simultaneously equal to zero and hence statistically significant at 5 percent critical value. At 74 percent, the R²-square obtained is satisfactorily high, implying that the model explains about 74 percent of the total variation in health expenditure. The Durbin-Watson test for serial correlation shows that the error terms are not serially correlated since it is approximately equal to two.

Table 8: Cyclical coefficients of social spending in Nigeria

Dependent Variable: LGDPGR

Variable	Coefficient	Std. Error	t-stat.	P-value
LGDPGR(-1)	0.3538**	0.1436	2.4635	0.0235
LGDPGR(-2)	-0.2259*	0.1304	-1.7316	0.0995
LGDPGR(-3)	0.2397 ***	0.0659	3.6350	0.0018
LGDPGR(-4)	-0.2011**	0.0726	-2.7700	0.0122
LEDU	0.3841 ***	0.1224	3.1370	0.0092
LEDU(-1)	0.2309	0.2155	1.0714	0.2974
LEDU(-2)	0.2301	0.1581	1.4561	0.1617
LEDU(-3)	-0.0528	0.1597	-0.3303	0.7448
LEDU(-4)	-0.2202***	0.0819	-2.6873	0.0015
LHLT	-0.1756	0.1567	-1.1203	0.2766
LHLT(-1)	-0.2595**	0.1163	-2.2308	0.0379
LDEBT	0.0275	0.0633	0.4339	0.6693
Cons	1.4581	1.6386	0.8898	0.3847
ECM(-1)	-0.8335***	0.1445	-5.7665	0.0000
R-squared = 0.74 F-stat = 4.57 (0.0000) DW = 1.51				

Note: ***, **and * denote significant at 1%, 5% and 10% significant level respectively

Source: the researcher's computation

Optimal Size of Public Spending in Ghana

Table 9: Estimation Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.012573	0.005571	2.256690	0.0310
D(LG SIZE)	0.867645***	0.041596	4.030294	0.0003
D(LREVT)	0.134196***	0.057400	2.288253	0.0450

R-squared = 0.64

DW = 2.00

F-stat = 8.31 (0.0012)

Optimal size = $\lambda^* = \beta_1/(\beta_1 + \beta_2) = 0.87/(0.87 + 0.13)$ **$\lambda^* = 0.87 = 86.6\%$** **Note: ***and * denote significant at 5% and 10% significant level respectively****Source: the researcher's computation**

Table 9 shows the estimates of the impact of government size and government revenue on real GDP per capita for Ghana. The result shows that the optimal or growth-maximizing rate of government expenditures is about 0.87 percent of GDP. This implied that the overall optimal government size that will maximize growth of GDP is 87 percent. This is the government size that helps stabilize output in case of demand shocks but would destabilize output in case of supply

shocks, if the government size exceeds this level. For Ghana, once the GSIZE reaches this threshold, it is necessary to reduce the government size with the aim to eliminate distortions and encourage long-run growth.

The obtained R²-squared of 64 percent is satisfactorily high, implying that the model explains about 64 percent of the variation in real GDP per capita in Ghana in the long run, this indicates a very good fit. The Durbin-Watson test for serial correlation shows that the error terms are not serially correlated since it is approximately equal to two. The values of the R-Square and Durbin-Watson also indicates that the OLS result is not spurious. The general F-value suggests that all the partial coefficients are not simultaneously equal to zero and hence statistically significant at 5 percent.

Optimal Size of Public Spending in Nigeria

Table 10: Estimation Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.026598	0.009272	2.868605	0.0072
D(LG SIZE)	0.582847***	0.265081	2.987506	0.0224
D(LREVT)	0.417918***	0.0925902	4.562912	0.0004

R-squared = 0.88

DW = 2.03

F-stat = 5.52 (0.0023)

Optimal size = $\lambda^* = \beta_1/(\beta_1 + \beta_2) = 0.58/(0.58 + 0.42)$ **$\lambda^* = 0.58 = 58.2\%$** **Note: ***and * denote significant at 5% and 10% significant level respectively****Source: the researcher's computation**

In table 10 the paper presents the estimates of the impact of government size and government revenue on real GDP per capita for Nigeria. The empirical results show that the optimal or growth-maximizing rate of government expenditures is about 0.58 percent. This means that the overall optimal government size that will maximize growth of GDP is 58 percent of GDP. This is the government size that helps stabilize output in case of demand shocks but would destabilize output in case of supply shocks. Once the GSIZE reaches this threshold, it is necessary to reduce the government size with the aim to eliminate distortions and encourage long-run growth.

The obtained R^2 -squared of 88 percent is satisfactorily high, implying that the model explains about 88 percent of the variation in real GDP per capita in Nigeria in the long run, this indicates a very good fit. The Durbin-Watson test for serial correlation shows that the error terms are not serially correlated since it is approximately equal to two. The values of the R-Square and Durbin-Watson also indicates that the OLS result is not spurious, since the value of Durbin-Watson

is greater than the R^2 -Square. The general F-value suggests that all the partial coefficients are not simultaneously equal to zero and hence statistically significant at 5 percent.

Effects of Public Social Spending in Smoothing out GDPC fluctuations in Selected West African Countries

The paper examined the efficacy of public social spending in smoothing out fluctuations in GDP per capita, in order to provide the needed stability. That is, it indicates the fiscal stabilization effects on volatility of output. To achieve this, the fiscal reaction function equations are estimated for each of the country to derive the fiscal stabilization coefficients. Using the approach adopted by Corsetti and Mueller (2010) and Furceri and Zdzienicka (2010) we analyse the ability of spending in health and education in Ghana and Nigeria. This paper hypothesizes that the fiscal stabilizing coefficient is stabilizing when the response of output (GDP) to social spending is positive and destabilizing when this coefficient is negative.

Table 11: the effects of fiscal stabilization on output fluctuations in Ghana

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.031602***	0.005766	5.480922	0.0000
LHLT(-1)	-0.007201***	0.002908	-2.476609	0.0211
LHLT(-2)	0.007294***	0.002697	2.704916	0.0126
LEDU	0.013540***	0.004114	3.295933	0.0038
LEDU(-2)	0.005159	0.013501	0.382128	0.7059
D(LOPEN)	0.000534	0.000456	1.171493	0.2534
D(LEXR)	-0.048814***	0.015461	-3.157133	0.0044
D(LGSIZE)	0.049359	0.044806	1.101616	0.2820
D(LDEBT)	-0.007344	0.035634	-0.206093	0.8385
ECMGDPC(-1)	-0.160534***	0.075199	-2.134777	0.0437
R^2 -squared = 0.68	DW = 1.80	F-stat = 4.31 (0.0022)		

Note: ***and * denote significant at 5% and 10% significant level respectively

Source: the researcher's computation

In table 11, we present the effects of fiscal stabilization on output fluctuations in Ghana. The findings show that one percent change in social spending on health destabilizes output by 0.0073 percent in the first year after the expenditure. Similarly, expenditure on education in the current period and at two lag stabilize output. The results show that following a one percentage rise in education expenditure in the current and second period, output also rises by about 0.014 percent and 0.005 percent respectively. These impacts are statistically significant at 5 percent and 10 percent levels of significance.

Again, the results showed that output volatility does not depend on government debt, government size and level of economic openness; as they are found to be insignificant determinants of output volatility in Ghana.

On the other hand, the level of exchange rate has negative and statistically significant effects on output.

The error correction term (ECMGDPC) is correctly signed and statistically significant. This result indicates that about 16 percent of any disequilibrium in the model is corrected within one year. The general F-value suggests that all the partial coefficients are not simultaneously equal to zero and hence statistically significant at 5 percent. At 68 percent, the R^2 -square obtained is satisfactorily high, implying that the model explains about 68 percent of the variation in output in Ghana. The Durbin-Watson test for serial correlation shows that the error terms are not serially correlated since it is approximately equal to two. The values of the R-Square and Durbin-Watson also indicates that the OLS result has the BLUE properties.

Table 12: The effects of fiscal stabilization on output fluctuations in Nigeria

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.034637	0.012817	2.702429	0.0137
LHLT	0.007583	0.007680	0.987383	0.3353
LHLT(-1)	0.015731*	0.009066	1.735138	0.0981
LHLT(-2)	0.009326***	0.004142	2.031462	0.0472
LEDU	-0.014531***	0.060505	-2.383231	0.0388
LEDU(-1)	-0.014688***	0.005043	-2.912552	0.0059
LEDU(-2)	-0.015352	0.009705	-1.581801	0.1294
D(LGDPC(-1))	-0.119434	0.173326	-0.689071	0.4987
D(LEXR)	-0.012798	0.045279	-0.282641	0.7804
D(LOPEN)	0.000508	0.000876	0.579687	0.5686
D(LGSIZE)	-0.014360	0.033641	-0.426868	0.6740
D(LDEBT)	-0.027054	0.033160	-0.815882	0.4242
ECMGDPC(-1)	-0.443037***	0.121601	-3.643358	0.0016

R²-square = 0.71

DW = 2.26

5.62 (0.0067)

Note: ***and * denote significant at 5% and 10% significant level respectively

Source: the researcher's computation

Table 12 shows the results of the effects of fiscal stabilization on output fluctuations in Nigeria. The results for Nigeria revealed that when social spending on health changes by one percent output is automatically stabilized in the current period, after the first and second period by 0.007, 0.016 and 0.009 percent respectively. In education the reverse is the case. One percent change in social spending on education automatically destabilized output both in the short run, one and two years after by 0.0145, 0.0146 and 0.0153 percent respectively. These estimates are found to be significant except in the second lags.

In addition, the results show that output volatility does not depend on the other variables that served as controls - government debt, government size, exchange rate and level of economic openness; as they are found to be insignificant determinants of output volatility in Nigeria. The results however, show that except level of openness, the other variables such as exchange rate, government size and debt have a negative impact on output.

The error correction term is found to be both negatively signed and statistically significant indicating the ability of output to return back to equilibrium after a year at a speed of 44.30 percent. The general F-value suggests that all the partial coefficients are not simultaneously equal to zero and hence statistically significant at 5% critical value. At 71 percent, the R-square obtained is satisfactorily high, implying that the model explains about 71 percent of the variation in output in Nigeria. The Durbin-Watson test for serial correlation shows that the error terms are not serially correlated since it is approximately equal to two.

DISCUSSION OF FINDINGS

The empirical evidence on the behaviour of government social spending on health and education in Ghana and Nigeria is mixed bag. There is evidence of both pro-cyclicality and counter-cyclicality of government social spending. This evidence is not totally in tandem with Keynesian postulation that government can help stabilize the economy in the short run via its spending. Basically, Keynes (1936) argues that any form of government spending is pro-cyclical and a veritable tool for curbing recession. However, the evidence from this paper is contrary to the conventional wisdom. This has serious implication for policy making in these West African countries, since government has to make choice whether to spend on health or on education, especially during economic downturns as it's been experienced in most countries of the world.

In Nigeria there is a strong evidence of both pro-cyclicality and counter-cyclicality of government spending in education and health in Nigeria respectively. While government spending in education in Nigeria is pro-cyclical, government spending on health is counter-cyclical. There is a strong evidence of counter-cyclicality of government spending in education and pro-cyclicality in health in Ghana. This finding is not in line with the conventional wisdom. The reason may be the nature of these two economies. These two economies are the strongest economies in West African and have high level of trade openness compared to other economies. These evidences of pro-cyclicality of government spending is in agreement with those of earlier studies such as Gavin and Perotti (1997); Talvi and Vegh (2000); Lane (2003); Caballero and Krishnamurthy (2004); Blanchard and Perotti (2002); Hossein and Yazdan (2009) and Amiri and Gerdtham (2013).

Ghana has the largest government size of 86.6 per cent and Nigeria at 58.2 per cent. According to IMF (2009) in 2007 the OECD average of total final government expenditures is 40.4 percent of GDP, while for the Euro area the average is 46.2 percent of the GDP. One of the reasons the estimated optimal size in developing countries is higher than those of the advanced countries could be that developing countries have not achieved sustainable growth and therefore need to spend more of their GDP in order to bring the economy to path of sustainable growth. The stabilization effect of social spending in the two selected countries showed that social spending in health exhibited a stabilizing effect on output in Ghana and Nigeria. Base on the findings of this paper, there is need for policy review of the pattern of government expenditure on education and health to harness the required impact on economic growth.

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