Effect of Government Expenditure on Economic Development: A Study of Selected West African Countries

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Authors' contributions

This work was carried out in collaboration between both authors. Author NOU designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author KOC managed the analyses of the study and managed the literature searches. Both authors read and approved the final manuscript.

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ABSTRACT

The importance of government expenditure on the development of the economy cannot be underrated. As such, the study explored the effect of government expenditure on economic development of selected West African countries (2000-2018) using secondary data from World Bank and United Nations Development Annual report. The research work chose five West African countries as its sample and used Random effect of the panel analysis to test the effect of the explanatory variables (government expenditure on health, defence and education) on the dependent variable, economic development (proxy by Human Development Index). The finding of the study shows that government expenditure had insignificant but positive effect on human development index of selected West African countries within the timeframe of the study. The study therefore recommends among others that Government should increase its expenditure on education, health and security, tackle corruption and waste. West African countries should also ensure that funds allocated to these sectors are not diverted or funneled into private pockets.

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1. INTRODUCTION

Government expenditure is important determining factor in an economy and economic development of a nation. The world we live in today constitutes of various government which are working to make life better for its citizens. Government of each country spends money in order to provide basic amenities to its citizens and without that, provision of economic products such as national defence, education, health, transport and communication, security of life and property among others owing to market failure would be practically complicated. As such, the channel to appeasing the needs of the citizens by government is to embark on expenditure through allocation of funds to various sectors of the economy. Mohammadi, Maleki and Gashti [1], asserts that health and education are the most important tasks of governments as their inherent duties. Also, they believed that governmental intervention in the area of market failure and economic balance is necessary.

However, it might operate as a double-edged sword: It may well notably enhance the cumulative productivity, particularly in developing countries where there are enormous market crash and poverty traps. Also, it could have hostile consequences such as unplanned price increases and boom-bust cycles [2]. Government expenditure is anticipated to be means of reducing the negative impacts of market failure on the economy.

However, distribution of public expenditure without contemplation of vital needs of the country may prompt greater alteration in the economy which may be harmful to growth. Since 1960, it has become a yearly ritual for the government to allocate public expenditure into various sectors of the economy. What is not clear yet are the degree to which configuration of public expenditure has impacted on the level of growth, if government allocations to the numerous sectors are determined by political consideration rather than economic reasons; it might not have significant effect on the economic growth and development of the country. The efficacy of government expenditure in growing the economy and promoting speedy economic development depends on if it is productive or unproductive. Nigeria like other developing countries, spend considerable resources on government, business services, societal services and transfers. While these public expenditures are clearly fundamental to promote social, human and economic development, it is essential to understand the sources of public expenditure growth and whether they also directly help in economic growth and development.

In spite of the fact that public expenditure has increased rapidly over the years in almost every West African country, and in spite of its growing role and importance in national economies, the economic effects of public expenditure remains relatively unexplored. Empirical studies relating to government expenditure and economy development in West African countries are rather scanty. Most of the works are rather inconclusive and contradicting. The major gap this study tends to fill is by disaggregating government expenditure into health, education and defence to see how it affects economic development in the West African sub-Region. The following sections of this work include: conceptual framework; theoretical framework and empirical review of related works. Others are methodology and data presentation; discussions, conclusion and recommendations.

2. LITERATURE REVIEW

The term "government expenditure" applies to revenue allocation which indicates the reallocation of fiscal capacity between the various levels of government or the disposition of responsibilities between tiers of the government [3].

Government expenditure is the overall spending at the federal, state and local government plus financial transfers to the parastatals at the three levels of government to suit the communal social needs of the people. Government or expenditure encompasses all government spending, venture, and transfer payments [4].

Bhatia [5] defines public expenditure as the costs which a government acquires for (i) running the government, (ii) the community and the economy, and (iii) assisting other countries. Public expenditure extensively refers to spending made by local, state and national government agencies as different from those of personal individuals. Public Expenditure also includes government expenses for the goods and services obtained and for the works completed in respect to their respective regulation, communal security

contributions, interest expenses of domestic and foreign debts, general borrowing expenses, costs resulting from therebated sale of borrowing instruments, economic, fiscal and social transfers, aid and donation, and other expenditures.

Government expenditure is also referred to as Public Expenditure i.e. Government spending. Expenditure in public affairs is classified into two broad segments, namely capital and recurrent expenditure. Expenditure directed to things of permanent nature, is called capital expenditure which include construction of roads, water and electricity, acquisition of other fixed assets, expenditure on stocks and grants and lending for capital purposes. But if it is channeled to something that is not of permanent nature and those expenses that are repeated yearly, it is called recurrent expenditure, there are personnel and overhead costs such as salaries and wages, travel and transport, utility services, entertainment and hospitality [4].

The procurement of goods and services by the government for contemporary use to directly gratify individuals or collective wants of the member of the community is classified as government final consumption expenditure. Government acquisition of goods and services anticipated to create future benefits, such as infrastructure investment or research spending, is known as government investment, (government gross fixed capital formation). Government outlays that are not procurement of goods and services, but represents transfer of money, such as social security payments, debt service, pensions and gratuities, external financial obligations such as annual subscription to international bodies are called transfer payment. The two categories of government spending, on final consumption and on gross capital formation together forms one of the main components of gross domestic product. According to Anyafo [4] government expenditure is made for the main reason of: External defence and internal security, Payment for factor services: Government pays for factor services through personnel and overhead costs embodied in the recurrent budget and this calls for heavy financial disbursement. Promotion of socio-economic well-being: Government expenditure is for the enhancement of economic and social well-being of the masses. For this purpose, government spends money on education and health. Expenditure by government on the provision of housing through various housing schemes, regulation and research associated with social security and welfare services. Execution of economic development programme: Government spends for the purpose of financing economic development. Economic services expenditures cater for the regulation, support and more efficient operation of business, economic development, restore regional imbalances and generation of employment opportunities. Research, trade promotions, geological survey and inspection and regulation of critical industry groups are among the activities included. Political machinery and public administration: the civil service commissions of the federation and of the states are equally institutionalized under the constitution. The president and the Governors are granted power of appointment of political office holders and ensuring in the instance of the federation that the federal character of Nigeria is kept in view and also in case of a state. The task of ensuring a good government requires adequate funding; hence government spends much to accomplish the task. Provision of Advances, subventions and subsidies: This category of government expenditure does not constitute disbursement in respect of exchange of values at arm-length transactions rather mere transfer payments propelled by the need to comply with affected covenants or statues. Advances are retired normally at maturity or when the task for which they are made is accomplished. Personal advances are typically in respect of acquisition of vehicles, household properties etc. Government makes grants and subventions to parastatals and other policy-favoured interest groups. In the same way, subsidies are allowed in favour of preferred sectors of the economy in furtherance of the policy objectives of government. Internal and External Debt servicing: Government expenditure is made for the purpose of servicing external and internal debts. External debt is a debt which a country owes to foreign interest groups while internal or domestic debt is the category of a country's national debt owed by the government to its own people or institutions within its own borders.

Human Development Index deals with long-lasting improvement in three fundamental areas of human development namely: access to safe and healthy life, access to learning, and appropriate living standard [6]. The United Nations developed Human Development Index (HDI) as a measuring tool that ranks countries' levels of social and economic development based on three criteria: Health Index, Education

Index, and Standard of Living Index. The health index represents life expectancy (i.e. the numbers of years) of a particular region or country under study. According to the United Nations (UN), the minimum and maximum life expectation in the world is said to be between 25years and 85 years respectively [6]. The education index represents the literacy rate and enrolment rate of people, in a particular region or country under study. The Literacy rate means the proportion of people of 16 years of age and above who are literates [6]. These people must be able to write, read and understand a simple statement regarding their day-to-day life. While enrolment rate is the proportion of children of school-going age (primary, secondary and tertiary), who go to school.

The standard of living index represents the per capita income of a region or country expressed in US$ at purchasing power parity (PPP) rate. They consist of the income of a country, the rate of exchange between the country's currency and US$, and the price level index of the country in comparison to the US price level.

2.1 Theoretical Framework

The theoretical framework we shall use in this study are the Keynesians growth theory, classical theory and Wagner's theory of growth. This research work is anchored on the Keynesians growth theory.

2.1.1 The keynesian growth theory

Keynesian economics was evolved by the British economist John Maynard Keynesian in the 1930s in an effort to comprehend the Great Depression. Keynes supported the notion that improved government spending and lower taxes will encourage demand and drag the world economy out of Depression.

Keynes and his supporters, however, advocates that during recession times the use of fiscal policies improves economic actions, i.e. expansionary fiscal policies, expanding public spending etc., increases community output. Afterwards, the term "Keynesian economics" explained the theory that most favorable economic performance could be attained – and economic falls prevented – by influencing total demand through organized stabilization and economic involvement policies by the government.

The Keynesian view contends that economic growth takes place as a result of increasing public sector expenditure. In this perspective, government expenditure is seen as an autonomous exogenous variable and might be used as an effective policy variable to control economic growth. This theory is established by Ansari and Bell [7] in their extensive study on Indonesia, Malaysia, Singapore, the Philippines and Thailand.

The way out to the great depression was to spur the economy ("stimulus to invest") amid the combination of two approaches: A decrease in interest rates (monetary policy), and government investment in infrastructure (fiscal policy). By decreasing the interest rate at which the Central Bank loans money to deposit money banks, the government invariably sends a signal to deposit money banks that they must do the same for their customers. Investment by government in infrastructure brings about income into the economy by creating business opportunity, employment and demand and reversing the effects of the economy breakdown. Government source the funding for this expenditure by borrowing funds from the economy through the issue of government bond, and other sources. The implication of this theory is that it can be used to focus on the long run relationship between government expenditure, economic growth and development

2.1.2 Wagner's theory of increasing government activities

Wagner's law is also referred to as the law of expanding state expenditure. It is a theory developed by German economist Adolph Wagner (1835–1917). He first experimented it in German his own country and then for other nations. For any nation government spending increases constantly and revealed an increasing sloping trend. The law envisages that the development of an industrialized economy will be followed by an increased share of public expenditure in gross national product. As progressive nations develop, the portion of the public sector spending in the general economy grows constantly. Increase in government expenditure is required because of three key reasons as identified by Wagner (i) public activities of the state, (ii) administrative and defensive actions, and (iii) wellbeing functions. More specifically, the theory implies. Socio-political, that is, the state social functions increase over time: retirement cover, natural calamity aid (such as internal or external),

geographical protection programs, etc. Economic: technical and scientific advancement, accordingly there will be an increase of state investments into the scientific, technological and several investment projects, etc. Historical: the state opts to government loans to cover unforeseen event, and hence the total of government debt and interest sum shoots up; i.e., it is arise in debt service expenses.

2.1.3 Classical growth theory

The works of Adam Smith, David Ricardo and Robert Malthus gave rise to what is known as Classical theory on growth and stagnation. The theory came about by merging the general strands of reasoning, within the individual growth theories, of these prominent classical economists. The key constituent of the classical theory of growth and stagnation are the technical progress, productivity function, asset, the determinants of gain, size of labour force and the remuneration system.

The theory postulates that ability to produce brings about growth, and the improving and increasing capital to allow that capacity was "the wealth of nations". While they emphasized the significance of agriculture and saw urban industry as "sterile", Smith protracted the idea that industrialization was central to the entire economy. David Ricardo disputed that trade was profitable to a country; since if one can buy a good more affordable from overseas; it shows that there was more gainful work to be done here. The theory of comparative advantage would be the main reason for the argument in favour of free trade as an important part of growth.

Most of the other classical economists, apart from Adam Smith, appear to consider that the production function is liner and homogeneous, which suggests that it has steady returns to scale. The implication is that doubling the quantities of all the factors of production, output would double. Adam Smith, on its part, held that increasing returns to scale on the basis of enhanced division of labour will lead to growth.

2.2 Empirical Review

Alexander [8] applied OLX regression method while selecting thirteen (13) countries of Organization for Economic Cooperation and Development (OECD) as its sample. Panel analysis was conducted during the period ranging from 1959 to 1984. The finding of the analysis indicates, that increase in government expenditure has significant but negative impact on economic growth.

Devarajan et al. [9] investigated government expenditure and economic growth of 14 developed countries for the period 1970 to 1990.Panal data was used in the analysis and applied the Ordinary least square method on 5-year moving average. They used different practical kinds of government expenditure (transport, health, education, etc) as the independent variables and found that transport, communication and health have positive but significant effect while defence and education have negative effect on economic growth.

Bleaney and Greenaway [10] did a study on the effect of government expenditure on economic growth. Annual panel data for the period 1970 to 1995 was used in the study while selecting 22 Organizations from OECD countries as the sample size. Applying GLS and OLS techniques, it was their finding, productive public spending improves economic growth, but non-productive public expenditure does not, in accordance with the predictions of Barro [6] model.

Mitchell [11] studied the effect of government spending on economic performance in developed countries. He evaluated the global evidence, examined the most recent research study, mentioned illustrations of countries that have drastically decreased government expenditure as a share of national productivity and investigated the economic implications of these reforms. Regardless of the methodology employed, he observed that a great and increasing size of government expenses is not favorable to healthier economic performance. He also argued that decreasing the size of government might increase incomes and competitiveness.

Josaphat and Oliver [12] explored the growth effects of government expenditure on the economy of thirty developing countries (including Nigeria) for a period spanning from 1970s to 1980s. Panel data was used for the analysis with a particular emphasis on sectoral expenditures. The major research result indicates that the part of government capital expenditure in GDP is significantly but positively correlated with economic growth, while current expenditure is insignificant. The findings from sectoral level, shown that government outlay and total spending on education are the only investments that

remain significantly associated with growth within the period of the study. Although public outlays and spending in different sectors (transportation and communication, health) was primarily found to have significant effect on growth, however they do not have effect when government budget is limited and other sectoral expenditures were integrated into the analysis. Also share of private investment in GDP was found to be associated with growth in economy in a significant and positive manner.

Loizides and Vamvouks [13] examined the causal relationship between public expenditure and economic growth, using data from Greece, United Kingdom, and Ireland. The researchers revealed a causal relationship between government size and economic growth in all the countries included in the study. The results also showed that economic growth has unidirectional causality with public expenditure for Greece and United Kingdom.

Bingxin et al. [14] evaluated the impact of various components of public expenditure on economic growth in developing countries. Dynamic generalized method of moment (GMM) model was used as method of data analysis and panal data for 44 developing countries for the period 1980 to 2004 was also. The findings revealed that the various types of public spending had different impact on economic growth. In Africa, human capital expenditure accounts for economic growth whereas, in Asia, capital formation, education, and agriculture expenditure helps in growth. None of these public expenditure items significantly impacts on economic growth in Latin America

Hanif and Ahmed [15] investigated public expenditure and economic growth of Sub-Saharan African Countries: Wagner's Panel Cointegration and Causality Applications. The study selected ten Sub-Saharan African countries, namely Nigeria, Botswana, Equatorial Guinea, Tanzania, Mauritania, South Africa, DR Congo, Ethiopia, Madagascar and Sierra Leone which were used to validity Wagner's law. Panel econometric approaches incorporating cointegration and causality for the period 2005-2014 was used as method of analysis. The study discovered long run relationship between the public expenditure and the various explanatory variables used as proxies of income. The study also shows bidirectional causality between expenditure and income in the models chosen in the study except the Gupta model. The study

therefore concludes that in Sub-Saharan Africa: Wagner's law and Keynesian hypothesis are both valid for the period under investigation. This goes to explain that there has been the tendency for public expenditure to grow in relation to national income (Wagner's law) and that public expenditure is a policy instrument (an exogenous factor) for improving national income (Keynesian hypothesis) during the 10-year period.

Diyoke et al. [16] examined government expenditure and growth in lower middle income countries in Sub-Sahara Africa: An empirical investigation. The study period covered 1980 to 2015 and focused on the lower middle income countries in the region such as Cameroon, Cape Verde, etc. The study also scrutinized the significance of oil receipts on growth via public expenses while oil exporting countries were captured as dummies.

Okungbowa and Ogbeide [17] examined the dynamic association between government expenditure, trade openness and economic growth in some selected Sub-Saharan African countries spanning from 1980 to 2015 with an annual data. The main aim was to investigate the movement of government expenditure, trade openness and economic growth in some chosen Sub-Saharan African countries. Equally, an attempt was made to test the existence of long run relationship and nature of shock transmission processes. It used descriptive statistics and VAR methodology for the estimation of the model with structural analysis. The finding of the study indicates that: economic growth and government expenditure in Sub-Saharan Africa shows the same relationship, as economic growth rises and falls, government expenditure also follows the same pattern. Trade openness, government expenditure and economic growth show a long-run co-integration relationship. The result of the study revealed that government expenditure has negative but significant relationship with economic growth in the sub-Saharan countries, the negative effect shows that Government of the Sub-saharan countries allocates government funds on uneconomical viable projects.

Mesghena [18] evaluated public spending and economic growth: empirical investigation of Sub-Saharan Africa. The model for the study was derived from cumulative production function in which government spending, foreign aid for development and trade-openness are clearly stated as explanatory variable. Random-effects and fixed-effects estimation techniques were

applied to the model. The findings from both estimation methods show that government expenditure, trade-openness, and private investment expenditure all have significant but positive effect on economic growth. There is also insignificant effect between foreign development assistance and the growth rate in population. The contributions of foreign development assistance and the growth rate in population on growth in the economy are statistically zero when a test of a restricted version of the model was carried out.

Gemmell and Kneller [19] studied empirical evidence on the effect of fiscal policy on long-run growth for European economy. The research required that at least two of the expenditure/deficit/taxation impacts must be investigated concurrently; they make use of panel and time series econometric techniques. It involves managing with the endogeneity of fiscal policy. Their results indicate that while several public investment expenditure has positive impacts on economic growth, social security and consumption expenditure have negative orzero growth effects.

Olorunfemi, [20] explored the association between public investment and economic growth in Nigeria. Time series data from 1975 to 2004 was used for the study and discovered positive relationship between public expenditure and economic growth and that there was no connection between gross fixed capital formation and Gross Domestic Product. He stated that from disaggregated analysis, the result revealed that only 37.1% of government expenditure is devoted to capital expenditure while 62.9% share is to current expenditure.

Olopade and Olepade [21] evaluated how fiscal and monetary policies affect economic growth and development. The study employs an analytic framework based on economic models, statistical methods encompassing trends analysis and simple regression. The reason for the study was to find out the components government expenditure that enhances growth and development and suggest cut on the ones that does not to be reduced. They find no significant relationship between most of the constituents of expenditure and economic growth.

Odusola [22] used instantaneous equations model to explain the connection between economic growth and military expenditure in Nigeria. This was essential because of the intrinsic causal association between government expenditure and economic growth, making any inference from a single equation model unacceptable. The findings from the research show that total military expenditure has a negative effect on growth at 10 percent significant level; and when disintegrated into capital and recurrent expenditure, the latter was more growth impeding than the former.

Gregorious and Ghosh [23] studied the impact of government expenditure on economic growth using heterogeneous panel data. The findings revealed that countries with results suggest that countries with huge government expenditure tend to experience greater economic growth.

Abu and Abdullah [24] investigated the effect of government expenditure on economic growth in Nigeria spanning from 1970 to 2008.The study broke up government expenditure in the effort to determine the impact of government expenditure on economic growth. Their results show a negative effect between government total capital expenditure, total recurrent expenditure and Education on economic growth. On the other hand, government expenditure on health, communication and transport result in an increase in economic growth.

3. METHODOLOGY

Keynes [25] stated that expanding public expenditure increases community output and development while economic crash will be prevented. Keynes theory believes that controlling aggregate demand by using advanced stabilization and economic interference policies by the government will lead to economic growth and development.

$$Y= C+I+G$$

Where Y is Aggregate Output, I is Investment, G is Autonomous Government expenditure and C is Consumption. From the above-stated equation, all the variables are positively related to Output. This means that any change in Government Spending will affect Output and can lead to full employment in the economy thereby leading to improved standard of living among the populace. Consequently, we specify the following equation for determining government expenses and the rate of economic development in some selected West African Africa countries (Nigeria, Gambia, Senegal, Ghanaand Cote d'ivoire) within the timeframe 2000 to 2018.

The study begins by specifying the model showing a functional relationship between HDI, DEXP, EDEXP and HEXP. This implies change in HDI might be the reason for the changes in DEXP, EDEXP and HEXP, this model captures change in economic development as a result of changes government expenditure on three critical sectors of economic development using Panel specification.

$$Y_{it} = a + b^x X_{it} + e_t$$

Where I= cross section, t= number of years

$HDI_{it} = \beta_0 + \beta_1 DEXP_{it} + \beta_2 EDEXP_{it} + \beta_3 EDEXP_{it} + \mu_{it}$

Where: HDI_{it}=Human Development Index *I*in period *t*

$DEXP_{it}$ =Defense Expenditure*I*in period *t*
$EDEXP_{it}$=Education Expenditure*I*in period *t*
$HEXP_{it}$= Health Expenditure*I*in period *t*
β_0 = Constant term (intercept) of the study model
β_1-β_3 = Coefficients of the explanatory variable
$\mu_{i,t}$= Component of unobserved error term

4. DATA PRESENTATION AND ANALYSIS

The characteristics of the data series used in the analysis are presented in Table 1. The table shows the summary of descriptive statistics used in the analysis. The mean value was shown to be 0.469736 for HDI, 58961672 for DEXP, 4.94E+08 for EDEXP and 8.340516 for HEXP. The median value was shown to be 0.460000 for HDI, 5.346000 for DEXP, 21.52700 for EDEXP and 4.383000 for HEXP. The maximum and minimum of the series are 0.600000 and 0.385000 for HDI, 9.71E+08 and 1.420000 for DEXP, 4.68E+09 and 5.031000 for EDEXP, 35.96000 and 2.491000 for HEXP. The series standard deviations are 0.054782 for HDI, 2.05E+08 for DEXP, 1.15E+09 for EDEXP and 8.763404for HEXP. The variables of standard deviations were found to be positively skewed towards normality as evidenced by the positive values of the skewness statistic. The Jarque-Bera suggests that all the variables are normally distributed as the p-values of these variables are less than 5% except HDI.

4.1 Co-Integration Test

The co-integration test is used in the determination of the long-run relationship that exists between variables. Table 2 shows that out of (11) probability shown in the Table (6) of them are less than 0.05 significant level, we then reject

H(0) and accept H(1). We then establish a long run relationship between the variables used in the research. Fisher Stat co-integration test also, confirms the long run relationship between the variables since majority of the probability is less than 5%.

4.2 Panel Estimation Test

This study adopted panel data which has the advantage of combining both time-series and cross sectional dimensions of five countries chosen for this research. Since the hausman test probability was greater than 5% meaning that random effect will be used to interpret the findings of the study. The constant parameter is positively related to human development index. It has a positive coefficient of 0.453276 which implies that if all explanatory variables are held constant in the short-run, human development index will increase by 0.453276 units. The constant parameter has significant but positive effect on human development index. Government expenditure on defence has insignificant and negative effect on human development index in West African Countries. Government spending on education and health has positive effect on human development in the Sub Region but education expenditure has significant effect while health expenditure has insignificant effect. The value of Adjusted R-squared showed that 20.5% of the total variation in dependent variable (HDI) is explained by independent variables (DEXP, EDEXP and HEXP) to the determination of HDI while the remaining 79.5% is caused by other explanatory factors outside this model and this is captured by the error term..The overall performance of the model is satisfactory as shown by Prob (F-statistics) of 0.000107 which is less than the critical value of 5% significance level.

4.3 DumitrescuHurlin Panel Causality Test

The work tested the causality of the variables studied on the dependent variable HDI using DumitrescuHurlin Panel Causality Test. The output data were shown in Table 5. Table 5 showed that there exist a unilateral causality between Education Expenditure (EDEXP) and Human Development Index (HDI), since the probability value is less than 5% and the W-statistic is more than the F-tabulated, therefore, we reject the Null Hypothesis (H_0) and accept the Alternate Hypothesis (H_1).This shows that government spending on education will improve

Table 1. Descriptive statistics

	Mean	Median	Maximum	Minimum	Std.Dev	Skewness	Kurtosis	Jarque-Bera	P-value	Obs
HDI	0.469736	0.460000	0.600000	0.385000	0.054782	0.508097	2.432790	5.361078	0.068526	95
DEXP	58961672	5.346000	9.71E+08	1.420000	2.05E+08	3.450080	13.76988	647.5937	0.000000	95
EDEXP	4.94E+08	21.52700	4.68E+09	5.031000	1.15E+09	2.244448	6.693483	133.7601	0.000000	95
HEXP	8.340516	4.383000	35.96000	2.491000	8.763404	1.798140	4.770360	63.63801	0.000000	95

Source: Computer Output Data using E-views 9.0

Table 2. Pedroni co-integration test

	Statistics	Probability	Weighted statistics	Probability
Panel v-Statistic	0.999985	0.1587	2.492009	0.0064
Panel rho-Statistic	0.972827	0.8347	0.918564	0.8208
Panel PP-Statistic	-1.393958	0.0817	-1.598376	0.0500
Panel ADFStatistic	-4.368764	0.0000	-4.136216	0.0000
Group rhoStatistic	1.337258	0.9094		
Group PPStatistic	-2.485504	0.0065		
Group ADFStatistic	-1.886212	0.0296		

Source: Computer Output Data using E-views 9.0

Table 3. Fisher stat co-integration test

Unrestricted cointegration rank test (trace and maximum eigenvalue)				
Hypothesized	Fisher stat.*		Fisher stat.*	
No. of CE(s)	(from trace test)	Prob.	(from max-eigen test)	Prob.
None	102.1	0.0000	81.88	0.0000
At most 1	34.75	0.0001	25.85	0.0039
At most 2	17.82	0.0580	12.77	0.2368
At most 3	21.58	0.0174	21.58	0.0174

Source: Computer Output Data using E-views 9.0

Table 4. Panel estimation test result

Variables	Balance		Fixed		Random	
	Coefficient	Probability	Coefficient	Probability	Coefficient	Probability
C	0.485785	0.0000	0.446701	0.0000	0.453276	0.0000
DEXP	-7.04E-11	0.0075	-4.32E-11	0.1676	-4.58E-11	0.1138
EDEXP	9.92E-12	0.0369	1.96E-11	0.0328	1.87E-11	0.0244
HEXP	-0.002014	0.0013	0.001903	0.1600	0.001191	0.3299
R-squared	0.199974		0.625257		0.204789	
Adjusted R squared	0.173600		0.595105		0.178573	
S.E. of regression	0.049801		0.034859		0.034836	
F-statistic	7.582117		20.73703		7.811688	
Prob (F-statistic)	0.000139		0.000000		0.000107	
Durbin-Watson stat	0.076439		0.142634		0.133389	
Correlated random effects-hausman test						
	Chi-Sq.Statistic	Prob				
	0.000000	1.0000				

Source: Computer Output Data using E-views 9.0

Table 5. DumitrescuHurlin panel causality test

Null hypothesis:	W-Stat.	Zbar-Stat.	Prob.
DEXP does not homogeneously cause HDI	3.96507	1.19059	0.2338
HDI does not homogeneously cause DEXP	3.43080	0.78415	0.4330
EDEXP does not homogeneously cause HDI	5.85950	2.63173	0.0085
HDI does not homogeneously cause EDEXP	1.67459	-0.55184	0.5811
HEXP does not homogeneously cause HDI	0.66227	-1.32194	0.1862
HDI does not homogeneously cause HEXP	3.26386	0.65716	0.5111

Source: Computer Output Data using E-views 9.0

Table 6. Variance decomposition of HDI

Period	S.E.	HDI	DEXP	EDEXP	HEXP
1	0.012187	100.0000	0.000000	0.000000	0.000000
2	0.016961	99.83060	0.102411	0.006009	0.060976
3	0.020609	99.39441	0.542034	0.005848	0.057710
4	0.023675	98.77211	1.178712	0.004469	0.044713
5	0.026381	98.02869	1.902766	0.004148	0.064400
6	0.028825	97.23065	2.632936	0.005836	0.130580
7	0.031063	96.42835	3.318489	0.010078	0.243084
8	0.033129	95.65452	3.931299	0.017268	0.396913
9	0.035049	94.92735	4.458773	0.027701	0.586175
10	0.036840	94.25471	4.898197	0.041585	0.805506

Source: Extracted from e-views 9 output data on variables of study

the labour skills leading to increase in productivity and overall standard of living. Also, it will bring about economic opportunities and increase research and development which will make poverty reduction and economic development easier to achieve. Sylwester [26] empirically asserted that government expenditure in education is a good weapon to decrease income inequality. Ensuring proper allocation of educational opportunities to the entire population is imperative to accelerating economic growth and development particularly; in emerging nations such as Nigeria that is experiencing colossal levels of poverty, disparity and market imperfections [27].

Hidalgo-Hidalgo and Iturbe-Ormaetxe [28] have realistically affirm that government expenditure in

primary education has a strong effect on raising individuals above the poverty line, on reducing the probability of suffering health problems when adults and on increasing school attendance beyond compulsory education.

4.4 Variance Decomposition

Variance decomposition helps to ascertain government expenditure variables (DEXP, EDEXP and HEXP) which most influence the variable of economic development in Nigeria. The results of the variance decomposition estimates of HDI in Table 6 shows that government expenditure on defence shocks explain about 4.9% of the variation in HDI in the 10th period. This is followed by government expenditure on health and education which explains about 0.80% and 0.042% changes in HDI in the 10TH period respectively, while about 99% of future changes in HDI are explained by present HDI.

5. SUMMARY, CONCLUSION AND POLICY IMPLICATION

5.1 Summary and Conclusion

Government expenditure as a component of the macro-economy is the supply of essential government services to the nationals, and provision of these services have association with the growth and development of the economy [29]. Also, following the Keynesian school of thought, government expenditure stimulates economic growth and development; increase in government spending raises aggregate demand which results in more productive economic activities to meet demands of population which will improve their standard of living. Though, the empirical exploration on this topic in West African countries remains a conflicting issue and is based on that, the study tends to ascertain the effect of government expenditure on economic development of some selected West African Africa countries (Gambia, Nigeria, Ghana, Senegal and Cote d'ivoire) from 2000 to 2018. Characteristics of the data series was determined using descriptive statistics while the existence of co-integration was determined using: Pedroni and Fisher Stat Co-integration Test. Random effect of the panel estimation was used to analyze the data. The result of the analysis shows that government expenditure has positive but insignificant effect on human development index of selected West African countries and is consistent with the study of

[17,21,24]. The study shows that a rise in government expenditure which leads to economic growth has not resulted to economic development and improved living conditions in West Africa countries. Despite the increase in government expenditure within the Sub-region there is no corresponding increase in development and improved standard of living within the Sub-Region. Udoka and Anyingang [29] penned that these funds may not have been released or they might have been used to fund improper or uneconomical projects or might have been emblazed or not rightly utilized.

This shows that the rate of corruption within the sub-region is high, no economic infrastructure, poor funding of the health and educational system. Equally, there is insecurity within the sub-region, the issue of Boko-haram, banditry and insurgent in Nigeria, militia groups and political instability in the region tends to destroy the little infrastructure put in place by the government and scare away internal and external investors.

5.2 Policy Implication

Keynesian school believes that a raise in government expenditure will result to an increase in economic growth and development but this is not so in West African Sub-region. Despite the huge expenditure of governments in their economy, there is no economic development or improvement in the living standard of its populace; as such the study makes the following recommendations. Government should increase its expenditure on, health, education and security as this will help improve the living standards its citizens, reduce income inequality and attract local and foreign investors. There is need to tackle corruption by government by making sure that funds allocated to these sectors are not funneled off into private pockets. Government within the Sub-region must tackle waste and be fiscally responsible by making sure that its funds are transparently and judiciously utilized. Apart from increasing expenditure in the educational sector, government should encourage teachers to enhance their impartation skills. Training and professional training exercises must be arranged to familiarize them with the use of computers and modern teaching tools especially online teaching. On the issue of security government should provide sophisticated weapons to the security personnel since no meaningful development can take place in a nation without adequate security. Government should also try to put in place effective machinery that will ensure the strict

adherence to due process and total implementation of annual budget provision and avoid digression of government funds to private uses.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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