PUBLIC EXPENDITURE AND ECONOMIC DEVELOPMENT IN SUB-SAHARAN AFRICA: EVIDENCE FROM NIGERIA AND GHANA

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ABSTRACT

This study examined the effect of public expenditure on economic development of Nigeria and Ghana using time series data sourced from Central Bank of Nigeria Statistical Bulletin and Word Bank data base from 1987-2020. Per capita income was modeled as the function of Nigeria Per capita income, Nigeria capital expenditure on Administration, Nigeria capital expenditure on Economic services, Nigeria capital expenditure on Social services, Nigeria capital expenditure on Transfers, Ghanaian capital expenditure on Education, Ghanaian capital expenditure on health, Ghanaian capital expenditure on Agriculture and Ghanaian capital expenditure as percentage of Gross Domestic Product. Ordinary Least Square (OLS), Augmented Dickey Fuller Test, Johansen Co-integration test, parsimonious vector error correction model and pair-wise causality tests were used to conduct the investigations and analysis. The study found that 66.2 percent variation in per capita income within the periods covered in this study, this implies that while the estimated regression results from Ghana proved that the independent variables can explains 50 percent variation on per capita income. The study concludes that there is significant relationship between capital expenditure and economic development of the two countries under study. It is recommended that government should increase the share of the capital expenditure especially on meaningful projects that have direct bearing on the citizen's welfare. Capital expenditures on economic services should be directed mainly at the agricultural sector so as to stimulate activities in the economic sectors and, perhaps, reverse the negative effect on economic development.

Keywords: Public Expenditure, Economic Development, Sub-Saharan Africa, Nigeria and Ghana

INTRODUCTION

Economic development is also a multidimensional process involving major changes in social structures, popular attitudes and national institutions as well as the acceleration of economic growth, the reduction of inequality and eradication of poverty. It is more concerned with enhancing the lives people leave and the freedom they enjoy. Economic development is measured by rising real per capita income, Gini coefficients and other measures of the distribution of income and wealth as well as indicators of quality of life, that range from life expectancy, crime statistics to environmental quality (source). Economic development is also a professional practice that uses definitions more inclusively than those of academic economists.

The opinion that public expenditure have major role to play in economic development could be traced to the Keynesians' revaluation of 1930s when the classical monetary policy failed to provide solution to the great depression which gave birth to the Keynesian fiscal policy that remedied the great depression. Public expenditure is a component of government fiscal policy used to achieve fiscal policy objective of economic growth. It is the intervention policy of the government to bridge the gap between demand and supply in the market system. Public expenditure refers to the value of goods and services provided through the public sector which are incurred in the process of producing and providing government service (Gbosi, 2007). It represents the overall aspect of fiscal policies towards expenditures programmes to meet the goals of stable long-run growth, economic efficiency and poverty alleviation.

The argument has been on whether or not large government expenditure is consistent with government objective of achieving accelerated economic growth. Advocates of large government expenditure argue that increased government expenditure on public goods like education, healthcare and infrastructure are necessary for higher levels of productivity. They further contend that increased government spending enhances the spending capacity of economic agents thereby making further production imperative. Keynesian economists, for instance, present an argument for government participation in economic activities as the panacea for enhanced performance. They argued that government spending stimulates demand through increased expenditure on sundry consumption thereby raising the growth of economic activity. Large government expenditure stimulates both public and private sector demand for goods and services leading to increased production of same in response to demand pressure. Evans and Karras (1994), Anaman (2004), Kustepelli (2005) and Heidari, Parvin and Fazeli,(2010) present empirical support for positive association between government expenditure and economic growth. On the other hand, critics argue that large government expenditure stifles growth due to high level of inefficiency associated with government institutions and governance. Large-scale government participation in an economy is also criticized on the premise that private sector participation in economic activities is greatly impaired thereby further slowing down the growth process. Critics asserted that while government spending are politically motivated, private sector spending are purely based on economic considerations and thereby more efficient and more competitive.

Furthermore, in Nigeria and other African countries, government expenditure has continued to rise due to increased demand for public goods like roads, communication, power, education, health and increasing need to provide both internal and external security. Unfortunately, rising government expenditure has not translated to meaningful growth and development as most African countries are ranks among the poorest countries in the world with more than 50 percent living on less than US$2 per day. Also dilapidated infrastructure

such as roads and power supply abound and has led to the collapse of many industries and high level of unemployment. while studies on the effect of public expenditure is well documented in literature, the effect of public expenditure on economic development of the African countries is lacking in literature, therefore this study examined the effect of public expenditure and economic development of Nigeria and Ghana.

LTERATURE REVIEW

Public Expenditure

Public expenditure concerns the expenses incurred by government for its own maintenance, the maintenance of the society and the economy at large. Expenditures incurred for helping countries form a part of total public expenditure. The starting point of the theory of public expenditure is the failure of the market mechanism to respond fully to the true needs of the society. In other words, market mechanism is not able to bridge the gap between private and social goods on the other hand. Furthermore, the public sector considers it relevant to protect the economy from the evils of market mechanism such as labour exploitation, economic and social injustice and the like. The public sector is on expanding the supply of merit goods and forcing the consumption upon the members of the society. Thus, theory of public expenditure started attracting increasing attention with the advent of welfare economics in which the role of the state was explicitly recognized and in which budgetary operations assumed a significant role. This tendency has been further reinforced by the widening interest of economists in the problems of economic growth, planning regional disparities, distributive justice and the like Okpara (2002).

Economic Development

Economic development measures the welfare of the citizens of a nation such as human development index, physical quality of life, life expectancy and literacy level. Conceptually, economic development refers to a discontinuous and spontaneous change in the stationary state which forever altered and displaced the equilibrium state previously existing (Schumpeters, 1911). Economic development is important because an underdeveloped economy is characterized by general poverty, unemployment and disguised unemployment, underdeveloped natural resources, dualistic economy, economic backwardness, insufficient capital equipment and technological backwardness (Jhingan, 2005). It is a critical function of availability of natural resources, rate of capital formation, capital output ratio, technological progress, dynamic entrepreneurship and other factors.

Theory of Increasing Public Expenditure

There are two important and well-known theories of increasing public expenditure. The first one is connected with Wagner and the other with Wiseman and Peacock. On the one hand, Wagner revealed that there are inherent tendencies for the activities of different layers of a government (such as central, state and local governments) to increase both intensively and extensively. He maintained that there was a functional relationship between the growth of an economy and government activities with the result that the governmental sector grows faster than the economy. However Nitti (1903) not only supported Wagner's thesis but also concluded with empirical evidence that it was equally applicable to several other governments which differed widely from each-others (Nitti, 1903). All kinds of governments, irrespective of their levels (say, the central or state government), intentions (peaceful or warlike), and size, had exhibited the same tendency of increasing public expenditure. But on the other hand, Wiseman and Peacock in their study of public expenditure in UK for the period 1890-1955 revealed that public expenditure does not increase in a smooth and

continuous manner, but in jerks or step like fashion. At times, some social or other disturbance takes place creating a need for increased public expenditure which the existing public revenue cannot meet.

Empirical Review

Prasetyo (2020) conducted to analyze the theoretical background and empirical study to investigate government's role to promote MSMEs growth in Indonesia. The secondary data after the 2008 global financial crisis recorded quarterly from 2009 to 2019 Q3 were analyzed using the Ordinary Least Square (OLS) regression model. The results showed government expenditure has a positive and significant contribution to small- and medium-sized enterprises, but the effect was not significant for micro-businesses. Meanwhile, the investment sector was discovered to have a positive and significant effect on MSMEs. The policy implications of the Indonesian government are expected to focus on its expenditure's role as the most important factor for social-economic protection of the community through micro-enterprises, which are numerous and more attached to the real community economic-social life. Therefore, the existence of micro-businesses is very helpful for the lower classes despite their high vulnerability to crisis.

Okoye, Omankhanlen, Okoh, Urhie And Ahmed (2019) examined the role of government in the growth and development process of an economy has remained a contentious issue among economists and policymakers in developed and developing nations. While Keynesian economists present an argument for growth-inducing role of government expenditure on the economy, critics also argue that government participation in economic activities is fraught with inefficiencies and therefore an impediment to growth. A third dimension to the argument derives from whether or not the interaction between government expenditure and growth is linear or non-linear thereby raising the issue of whether there exists an optimum size of government expenditure for an economy. Over the years, fiscal operations in Nigeria show a steady increase in government expenditure *vis-à-vis* sub-optimal economic performance (measured by growth in GDP). Studies on government expenditure-economic growth nexus show mixed results. To contribute to literature on the subject, this study examines the relationship between government expenditure and economic growth to determine the extent to which output growth in Nigeria is affected by government spending. The study is based on historical data between 1981 and 2017. Government expenditure is analyzed in the study in its aggregate form and constituent parts, while controlling for inflation. The study shows significant short-run negative effect of lagged current expenditure on economic growth. It also shows strong positive effect of lagged capital expenditure on growth.

Asghari, Heidari and Zonouzi (2014) investigated how government expenditure affects economic growth in selected countries between 1990 and 2011. Countries included in the study sample are Algeria, Egypt, Iran, Jordan, Lebanon, Malta, Morocco, Saudi Arabia, Sudan, Syria, Tunisia and Yemen. Model estimation was based on the method of Panel Smooth Threshold Regression (PSTR). The study indicates non-linear relationship between the variables. It further presents a negative relationship between government consumption expenditure and economic growth which implies that high levels of consumption diminish capacity for productive investment thereby impeding growth. This result validates the outcome of an earlier study by Gupta (1988) though Gupta (1988) further suggest that level of economic development plays a vital role in the interaction between growth and government spending. Specifically, the research shows that government consumption negatively affects growth in developed economies but enhances it in developing economies.

Gunalp and Gur (2002) estimated the effect of government spending on economic growth in a sample of thirty-four developing nations drawn from Asia, Latin America and Africa. Estimates from the panel analysis show strong support for positive or growth-enhancing effect of government expenditure on economic growth in the sample. The result further indicates evidence of country-specific effect. Most of the Asian countries in the sample that have history of rapid growth and competitive export industries, abundant stock of human and physical capital, sound governance and political systems, and strong economic fundamentals show positive relationship between economic growth and government expenditure. However, the reverse was observed for most of the African and Latin American countries due, largely, to weak institutions, unstable economic and political systems.

Pula and Elshani (2017) examined the nexus between public expenditure and economic growth in order to ascertain which of Keynes or Wagners laws apply to Kosovo. In essence, the work aimed at ascertaining which of the two variables drives the other. The study analyzed quarterly data from 2004-2016 using Johansen and Granger causality tests. The co-integration test reveals long-run association between economic growth and the explanatory variables. With regard to causality, the result shows government expenditure as the driver of growth and thereby validates the Keynesian argument for Kosovo. It further shows one-way causality from economic growth to government revenue as well as bi-directional causality between foreign direct investment and economic growth and between export and economic growth.

Paparas and Stoian (2016) produced empirical support for Wagner law for Romania. Using Johansen co-integration and Granger causality tests Paparas and Stoian (2016) examined the relationship between government expenditure and economic growth in Romania between 1995 and 2015. Though the study produced mixed results in the short-run (Wagner law was validated in two out of five of its representations), the long-run result shows economic growth as the driver of government expenditure. Wang, Peculea and Xu (2016) used ARDL method to further validate Wagner law for Romania based on data for 1991-2014. Studies have also produced evidence in support of linearity argument on the nexus between government expenditure and output growth. Armey (1995) demonstrated non-linear relationship between growth and government spending. The study produced an inverted U-shaped relationship between the variables. The result was further validated in Veddar and Gallaway (1998). The work of Chen and Lee (2005) used an inverted U-shaped Armey curve to analyze the nexus between growth and government spending. The study identified threshold effect in the relationship which implies positive impact of government size on output performance up to a certain level (the threshold) and negative impact beyond this point. This indicates that additional expenditures beyond the identified threshold become less productive thereby lowering growth rate.

Karagiani (2009) established non-linear causal relationship between national income and government spending in selected European countries. In their respective studies, Hearth (2009) and Fachini (2011) also produced empirical support for non-linear relationship between growth and government expenditure for Sri-Lanka over 1953-2003 and France (1871-2008). The work of Fallahi and Shoorkchali (2012) sought to validate the existence of non-linear or inverted U-shaped relationship between government spending and economic growth for Greece using annual data from 1961 to 2008. The result of the smooth transition regression did not support inverted U-shaped relationship between the variables. It rather shows linear and positive association between them. Using data on 12 Western European

industrial countries, Pevcin (2004) produced evidence of strong negative relationship between government expenditure and economic growth. The study further indicates existence of an optimal level of government expenditure in an economy.

Berg (2007) examined the nexus between government spending and economic growth based on a sample of rich OECD countries, the result provides strong empirical support for negative impact of government expenditure on growth. The study analyzed data over 1970-2005 using OLS and Bayesian algorithm methods. Loto (2008) conducted a sectoral study on how government expenditure on selected sectors of the economy affects output growth in Nigeria. The study covered agricultural, health, transportation, security and communication sectors. The result shows expenditure on agriculture as an impediment to economic growth while expenditure on other sectors did not significantly enhance growth. Zareen and Qayyum (2014) analyzed the relationship between government size and economic growth in Pakistan and provided evidence that large government size retards growth. Herath (2012) presented evidence that large government expenditure can be an impediment to growth through reduction of constructive features of government intervention. Argument on whether or not there exists an optimum level of government expenditure that supports growth seems resolved in Sjoberg (2003) which produced evidence that if government expenditure is either too small or too large, growth is impeded. This suggests existence of an optimum level of government expenditure that is consistent with increased output. This level of expenditure optimizes available capacity to generate increased output.

Hansson and Henrekson (1994) provided empirical support for Gupta (1989) who argued that the relationship between government expenditure and economic growth depends on what constitutes government expenditure or how the concept is defined. Evidence from Hansson and Henrekson (1994) indicates that consumption-oriented expenditure is an impediment to growth whereas expenditure that targets improvement in education (capacity building) positively impacts output growth. Similarly, Sjoberg (2003) finds that while government consumption expenditure reduces growth, expenditure on education enhances capacity for growth. Ifarajimi and Ola (2017) used dynamic ordinary least squares (DOLS) to estimate the impact of government expenditure on economic growth in Nigeria between 1981 and 2015.The result of the study indicates strong impact of government expenditures on administration and economic services on economic growth. Using the Johansen method Ogundipe and Oluwatobi (2013) showed that over the period 1970-2009 expenditure on health and education sectors in Nigeria correlated strongly with economic growth.

Hasnul (2015) used ordinary least squares method (OLS) to estimate the effect of government spending on economic growth in Malaysia between 1970 and 2014. Evidence from the study indicates that expenditures on housing and development reduced output growth while expenditures on education, defence, healthcare and government operations did not significantly affect economic growth. Kimoro, Keong and Sea (2017) used generalized method of moments (GMM) to estimate the effect of government expenditure and government efficiency on economic growth using panel data on 25 low income Sub-Saharan African (SSA) countries for the period 2002-2015. The result shows that increased government expenditure accelerates economic growth in the economies. However, when efficiency of government spending was introduced as an interactive variable, the result shows non-significant effect of government spending, an indication of inefficiency in government fiscal operations. Alexiou (2009) used two distinct panel estimation methods to determine the impact of government spending on economic growth in 7 transition economies in South Eastern Europe (SEE). The result indicates that expenditures on capital formation and

development assistance facilitate economic growth in these economies. There is also evidence that private sector investment spending strongly enhanced growth, an indication that government and private sector play complementary roles in driving economic growth in South Eastern Europe.

Babatunde (2018) used a sample of 237 respondents within Lagos metropolis to ascertain public perception on the nexus between government expenditure and the expectations of citizens. Based on the outcome of the study, the author concludes that while public spending on agriculture and natural resources did not align with public expectations, expenditure on transportation and communication, education, and healthcare are consistent with public expectations on good governance. From the study of selected OECD countries, Connolly and Li (2016) reported strong negative association between public social expenditure and economic growth. Dupor (2017) examined the response of the American economy to government expenditure in the post-recession period of 2009 shows non-cost effective response of job creation to government expenditure as well as crowding out effect of the private sector by high government expenditure on defence. These results indicate negative correlation between economic growth and government spending. The research conducted by Nurlina (2015) examined the nexus between government expenditure and economic growth in Indonesia from 2004 to 2013 shows that increase in total government expenditure enhances economic growth. Studies have also been conducted to determine causal relationships between government spending and economic growth with mixed results. Abu Bader and Abu-Qarn (2003) reported bi-directional causality between the variables. The study which examined the causal relationship between government spending in Israel, Egypt and Syria also shows strong relationship between the variables over the long-run. However, when decomposed into civilian and military expenditures, it was observed that while military expenditures retard growth in the study sample, civilian expenditures contribute positively to growth in Israel and Egypt.

Loizedes and Vamvoukas (2005) analyzed how government spending correlate with economic growth in Ireland, Greece and the United Kingdom shows causal impact of government spending on growth for all the countries. However, when inflation was introduced in the model, the authors report reverse causality (from growth to government expenditure) for United Kingdom and Greece. Further evidence of causation between government spending and economic growth was produced by Jiranyakul and Brahmasrene (2007). The work presents evidence of uni-directional causality from government spending to economic growth. Olugbenga and Owoye (2007) analyzed panel data for 30 OECD countries over 1970-2005 was rather mixed. It indicates empirical support for causal impact of government spending on growth for 16 of the countries while causality was observed from growth to government expenditure for 10 other countries. Bi-directional causality was reported for 4 countries. Liu, Hsu and Younis (2008) analyzed the nexus between government expenditure and economic growth in the United States of America between1947 and 2002 using the Granger causality method. The study shows uni-directional causality from government expenditure to economic growth.

Chiawa, Torruam and Abur (2012) conducted a cointegration and causality analysis of the nexus between government expenditure and economic growth in Nigeria. The study produced empirical support for strong long-run association between the variables. With regard to short run interaction, the result shows that capital and recurrent expenditures increase in response to output growth. Studies on the nexus between government expenditure and economic growth in Nigeria also produced mixed results. Using the method of ordinary least squares,

Okoro (2013) found that between 1980 and 2011there is evidence that government recurrent expenditure enhanced economic growth while there is no evidence that capital expenditure significantly impacted growth. Iheanacho (2016) showed that both recurrent and capital expenditure are impediments to economic growth. Okoh (2013) examined the short- and long-run interactions between government capital expenditure and economic growth in Nigeria using disaggregated data on capital expenditure between 1981 and 2013. The VECM estimates show strong long-run impact of road and education expenditures on economic growth as well as strong negative impact of agriculture and health expenditures on growth. The short-run estimates based on Granger causality method indicate bi-directional causality between capital expenditure on agriculture and economic growth as well as between capital expenditure on health and economic growth. There is also evidence of uni-directional causality from road infrastructure to economic growth and from education to economic growth.

Garba and Abdulahi (2013) examined the nexus between public expenditure and economic growth in Nigeria over the period 1970-2008 using co-integration and Granger causality tests. The co-integration test shows evidence of long-run cohesion among the variables. Estimates from the Granger causality test show bi-directional causality between government expenditure and economic growth. Danladi, Akomolafe, Olarinde and Anyadiegwu (2015) used the autoregressive distributed lag (ARDL) and Granger causality estimation methods to determine the relationship between government expenditure and economic growth in Nigeria between 1981 and 2013. The regression result shows strong positive effect of government spending on economic growth. The result was further validated by the Granger causality result which shows causal impact of government expenditure on economic growth.

Ewa and Okoi (2018) examined the effect of public expenditure on economic development in Nigeria for the period 2000–2015. Ordinary Least Square (OLS) multiple regression model was employed on the perceived causal relationship between public expenditure and economic development. The study revealed that capital expenditure on Economic Services and recurrent expenditure on administration exerted positive and insignificant effect on unemployment rate in Nigeria while public expenditure on social and community service exerted negative and insignificant effect on unemployment rate in Nigeria. Also the study revealed that capital expenditure on Economic Services and Social and Community Services exerted positive and significant effect on private investment in Nigeria while recurrent expenditure on administration exerted negative and significant effect on private investment in Nigeria. In all, the study revealed a significant impact of public expenditure on GDP, unemployment rate and private investment in Nigeria for the period 2000-2015.

Sedrakyan and Varela-Candamio (2019) examined the macroeconomic size of government expenditures in Armenia and Spain and assesses whether there exists a causal connection between government expenditures and economic growth, with regards to Keynes' theory and Wagner's law. The investigation utilizes the VAR approach to break down yearly information for the years 1996–2014. By using Granger causality tests, their analysis uncovers whether government expenditures are a noteworthy factor in economic growth in short-run point of view. Finally, in their analysis, IRF and FEVD tests were applied to appraise the impacts of specific government expenditures on GDP for a multi-year time skyline. This examination approves the theory that independent of size and nature of the economy (Armenia versus Spain), some government expenditures (for example health services) decidedly add to the growth of the economy, while social insurance in the two nations is adversely identified with GDP (Sedrakyan and Varela-Candamio, 2019). Whether

research is to prove Wagner or Keynesian hypothesis, results have remained diverse depending on place of research, timing and empirical approach employed (Abbasov & Aliyev, 2018). This paper contributes to the foregoing research by looking a single emerging country case (South Africa). The method and results proceed in the following section.

Barro (1999) carried out an empirical investigation into the determinants of economic growth for a panel of 100 countries using data from 1960 to 1995. Government consumption expenditure and government investment spending were some of the key variables included in the study. Among other findings, the results of the study showed that government investment expenditure had a positive impact on economic growth and it was concluded that investment spending by a government should be encouraged in order to boost economic growth. Yasin (2000) re-examined the effect of government spending on economic growth in 26 sub-Saharan African (SSA) countries from 1987 to 1997. The examination was based on a model derived from an aggregate production function. Based on the application of both fixed-effects and random-effects estimation techniques, the results of the study showed that government expenditure has a positive effect on economic growth in SSA. Bose, Haque and Osborn (2007) concluded that the impact of public expenditure on economic growth is positive, based on a sample of developing countries. In their paper, they examined the growth effects of government expenditure for a panel of 30 developing countries over the 1970s and 1980s, with a particular focus on disaggregated government expenditures. Using a methodology that takes into consideration the role of government budget constraints and the possible biases arising from omitted variables, they found that government capital expenditure is positively and significantly correlated with economic growth. Further, at the disaggregated level, government investment in education and total expenditures on education were the only outlays that had a positive impact on economic growth after a budget constraint and omitted variables had been taken into consideration.

Ghosh and Gregoriou (2008) investigated the relationship between disaggregated government expenditure and economic growth in 15 developing countries' general methods of moment (GMM). The results were found to vary depending on the type of government expenditure under consideration capital or current. The Keynesian view was found to dominate when government expenditure was proxied by current government spending. The results further showed that government expenditure on operations and maintenance had a stronger positive impact on economic growth than their education and health counterparts. Alexiou (2009) empirically investigated the relationship between economic growth and government expenditure in the South Eastern European (SEE) economies from 1995 to 2005, using both the fixed effects model and the random coefficient model. The results confirmed that government expenditure has a positive impact on economic growth in the study countries.

Nurudeen and Usman (2010) empirically assessed the impact of disaggregated government spending on economic growth in the case of Nigeria during the period from1979 to 2007. Government expenditure was disaggregated into capital expenditure, recurrent expenditures, expenditure on education, expenditure on transport and communication, and expenditure on health. Using the co-integration and error correction methodology, the results of the study revealed that government expenditure on transport and communication, and on health, leads to an increase in economic growth in Nigeria. Wahab (2011) used a worldwide sample in examining the impact of both aggregated and disaggregated government spending on economic growth using two samples one sample for aggregated government spending in 97 developing and developed countries during the1960–2004 periods; and the other sample for disaggregated government spending in 32 countries using the 1980–2000 data. Based on the

symmetric and asymmetric model specifications, the study revealed that aggregate spending by a government has both a positive impact on economic growth and positive output growth effects. From the disaggregated sample, the study further showed that government investment spending has positive output growth effects.

Shahid et al. (2013) examined the impact of government expenditure on economic growth in Pakistan during the period from 1972 to 2009. They further split government expenditure into development expenditure and current expenditure components. Using the autoregressive distributed lag (ARDL) model, the study revealed that in Pakistan, development expenditure positively affects economic growth. Attari and Javed (2013) empirically explored the relationship between government expenditure and economic growth in Pakistan using time series data stretching from 1980 to 2010. The study further splits government expenditure into two categories current expenditure and development expenditure. Based on time-series econometrics tools, the results of the study revealed that both types of government expenditure have a positive impact on economic growth in the study country, both in the short run and in the long run. Egbetunde and Fasanya (2013) empirically analyzed the impact of public expenditure on economic growth in Nigeria based on annual time series data from 1970 to2010. Government spending was further disaggregated into two categories, capital and recurrent spending. Using the ARDL estimating techniques, the study showed that in Nigeria, both the recurrent and capital expenditure have a positive impact on economic growth.

Alshahrani and Alsadiq (2014) investigated the long- and short-run impact of government expenditure on economic growth in the economy of Saudi Arabia during 1969-2010. The study further divided government expenditure into various types. Using different econometric techniques, the findings of the study indicated that healthcare expenditure and expenditure on domestic investment have a positive impact on economic growth. The same findings also confirmed that in Saudi Arabia, housing sector expenditure has the same effect on economic growth, however, in the short run. Al-Fawwaz (2016) examined the impact of government expenditure and its disaggregated components on economic growth in Jordan during a period from 1980 to 2013.Using the multiple linear regression models and the OLS model, the results confirmed the existence of a positive relationship between government expenditure and economic growth in the study country. Thus, both total government expenditure and current government expenditure, were found to have a positive impact on economic growth. This result lent support to the Keynesian view that places importance on government expenditure in propelling economic growth.

Guandong and Muturi (2016) examined the relationship and dynamic interactions between government expenditure and economic growth in South Sudan from 2006to 2014. However, government expenditure was further divided into various components. Using the regression model for panel data, including a random effect to analyse the data, the findings showed that public expenditure on infrastructure, the productive sector and security are positive determinants of economic growth in the study country. Asghari and Heidari (2016) revisited the government spending-economic growth nexus as they empirically examined the impact of government size on economic growth. The study was based on a sample of selected Organization for Economic Cooperation and Development Nuclear Energy Agency (OECD-NEA) countries based on data stretching from 1990 to 2011. Using the Panel Smooth Transition Regression (PSTR) model in the form of a Cobb-Douglas equation function, the results of the study rejected the linearity hypothesis. Kimaro et al. (2017) empirically assessed the impact and efficiency of government expenditure on economic growth in 25 low

income SSA countries, covering the period from2002 to 2015. Using the GMM, the results of the study showed that government expenditure and economic growth were positively related in the study countries.

Leshoro (2017) put government spending and economic growth to an empirical test in the case of South Africa using annual data covering the period from 1976 to2015. Government spending was further disaggregated into various components government investment spending and government consumption spending. Using the autoregressive distributed lag (ARDL) estimation procedure, the results of the study showed that government spending has a positive impact on economic growth in the study country, irrespective of the government expenditure component under consideration investment or consumption expenditure. These results were found to hold irrespective of whether the estimation was in the long run or in the short run. Lupu et al. (2018), in their recent study, put the impact of disaggregated public expenditure on economic growth to the test, in the case of 10 selected Central and Eastern European countries using data stretching from 1995 to 2015. Using the ARDL approach, the results of the study revealed that public expenditures on education and health care have a positive impact on economic growth in the study countries.

Okoye et al. (2019) examined the relationship between government expenditure both aggregated and disaggregated and economic growth in an effort to determine the extent to which output growth in Nigeria is affected by government spending, during the period from1981–2017. They found that in Nigeria, capital expenditure has a positive impact on economic growth. Schaltegger and Torgler (2006) also put the government size-economic growth relationship to the test in 2006, when they empirically examined the relationship between the two macroeconomic variables using data for Switzerland over a period from 1981–2001. Public expenditure was further disaggregated into two components operating budgets and capital budgets. Government spending by the state, and local governments, was also considered. Using time-series analysis tools, the finding of the study revealed that in Switzerland, the overall spending by the government as well government spending from operating budgets, has a robust negative impact on economic growth.

Ghosh and Gregoriou (2008) investigated the relationship between disaggregated government expenditure and economic growth in 15 developing countries using the GMM. The results varied depending on the type of government expenditure under consideration capital or current. Capital spending was found to have a negative impact on economic growth. Taban (2010) re-investigated the government expenditure-economic growth nexus for the Turkish economy using quarterly data covering the period from period from 1987: Q1 to2006: Q4. Various proxies were used to capture government expenditure total government expenditure, the share of government consumption spending to GDP, government investment expenditure to GDP and government consumption spending to GDP ratio. Based on the ARDL bounds testing approach, the results of the study revealed that the share of total government spending, and the share of government investment spending to GDP had a negative impact on economic growth in Turkey. Nurudeen and Usman (2010) empirically assessed the impact of disaggregated government spending on economic growth in the case of Nigeria during the period from1979 to 2007. Government expenditure was disaggregated into capital expenditure, recurrent expenditures, expenditure on education, expenditure on transport and communication, and expenditure on health. Using the co-integration and error correction methodology, the results of the study revealed that government capital expenditure, recurrent expenditure and government expenditure on education have a negative impact on economic growth in Nigeria.

Butkiewicz and Yanikkaya (2011) empirically examined the impact of aggregated and disaggregated government expenditure on economic growth using a sample of over100 developed and developing nations. Based on the Seemingly-Unrelated Regression (SUR) technique, the results of the study indicated that despite the inconsistencies across the sample, in the main, aggregated government expenditure as well as consumption expenditure was found to have a negative impact on economic growth in the study countries. Ndambiri et al. (2012) examined the determinants of economic growth in a panel of 19 sub-Saharan African countries, in the period from 1982 to 2000. Among the variables incorporated in the model was public expenditure. Using the Generalised Method of Moments (GMM), the results of the study indicated that government expenditure leads to negative economic growth in the sample study countries.

Altunc and Aydın (2013) examined the relationship between government expenditure and the rate of economic growth in three countries Turkey, Romania and Bulgaria using data from 19952011. The main focus of the study was to establish whether the relationship between these two variables is linear or an "inverted U" shape; and to find out the optimal level of government spending in each of the study countries. Using the ARDL bounds testing approach, the empirical finding of the study revealed that in the study countries, the level of government expenditure exceeded the optimal level, hence a lower than desired economic growth rate. Hasnul (2015) put the relationship between government expenditure and economic growth in Malaysia to the test for a period spanning from 1970 to 2014. On the one hand, government expenditure was further disaggregated into government operating and development expenditures. On the other hand, government expenditure was split based on the sector within which the expenditure is allocated. Using an OLS technique, the results revealed the existence of a negative relationship between aggregate government expenditure and economic growth in the study country. The results of the study further confirmed that government expenditure on the development category and on the housing sector also has a negative impact on economic growth in Malaysia.

Guandong and Muturi (2016) examined the relationship and dynamic interactions between government expenditure and economic growth in South Sudan from 2006 to 2014. However, government expenditure was further divided into various components. Using the regression model for panel data, including a random effect, to analyse the data, the findings showed that public expenditure on the social services sector was found to have a negative impact on economic growth in the study country. Chirwa and Odhiambo (2016) carried out a study to empirically determine the long-run drivers of economic growth in South Africa over a period from 1970 to 2013. Using the ARDL technique, the results of the study indicated that government spending had a significant negative impact on economic growth in South Africa, both in the short run and in the long run. Sáez et al. (2017) studied the relationship between government spending and economic growth in European Union countries using data stretching from 1994 to 2012. Using panel data techniques, the results of the study revealed that, while the relationship between government spending and economic growth can be positive or negative, depending on the countries included in the sample, the period of estimation and the variables used to proxy the public sector size, government spending has a negative impact on economic growth in European Union countries. In 2018, Lupu et al. (2018) examined the impact of public expenditure on economic growth in 10 selected Central and Eastern European countries during 1995–2015. Public expenditure was disaggregated into 10 different categories. The results, based on ARDL estimation techniques, showed that model public expenditures on defence, economic affairs, general public services, and social welfare have a negative impact on economic growth in the study countries.

Schaltegger and Torgler (2006) also put government size-economic growth relationship to the test in 2006, when they empirically examined the relationship between the two macroeconomic variables using data for Switzerland over the 1981–2001 periods. Public expenditure was further disaggregated into two components operating budgets and capital budgets. Government spending by the state, and local governments, was also considered. Using time-series analysis tools, the finding of the study revealed that in Switzerland, government spending from capital budgets has an insignificant impact on economic growth. Bose et al. (2007) examined the impact of public expenditure on economic growth in a sample of 30 developing countries using 1970s and 1980s data. Public expenditure was further disaggregated into capital and current expenditure. Using panel data techniques, they found that, while capital expenditure has a positive impact on economic growth, current expenditure exhibited neutrality traits, as it was found to have no significant impact on economic growth.

Taban (2010) re-investigated government expenditure-economic growth nexus for the Turkish economy using quarterly data covering a period from period from 1987: Q1 to2006: Q4. Various proxies were used to capture government expenditure total government expenditure, the share of government consumption spending to GDP, government investment expenditure to GDP and government consumption spending to the GDP ratio. Based on the ARDL bounds testing approach, the results of the study revealed that there is no significant relationship between government expending and economic growth in Turkey when government expenditure is proxied by government consumption spending. Wahab (2011) used a worldwide sample to examine the impact of both aggregated and disaggregated government spending on economic growth using two samples one sample for aggregated government spending in 97 developing and developed countries during the period from 1960–2004; and the other sample for disaggregated government spending in 32 countries using 1980–2000 data. Based on the symmetric and asymmetric model specifications, the study revealed that government consumption spending has no significant output growth effects. Shahid et al. (2013) examined the impact of government expenditure on economic growth in Pakistan during the period from 1972 to 2009. They further split government expenditure into development expenditure and current expenditure components. Using an autoregressive distributed lag (ARDL) model, the results showed that in Pakistan, current expenditure does not contribute to economic growth.

Egbetunde and Fasanya (2013) empirically analysed the impact of public expenditure on economic growth in Nigeria based on annual time series data from 1970 to2010. Government spending was further disaggregated into two categories, capital and recurrent spending. Using the ARDL estimating techniques, the study revealed that total government spending had an insignificant impact on economic growth in Nigeria. Hasnul (2015) put the relationship between government expenditure and economic growth in Malaysia to the test for the period spanning from 1970 to 2014. On the one hand, government expenditure was further disaggregated into government operating and development expenditures. On the other, government expenditure was split based on the sector within which the expenditure was allocated. Using an OLS technique, the results of the study confirmed that operating government expenditure and expenditure on the education, defence and healthcare sectors had no impact on economic growth in Malaysia.

Barlas (2020) evaluated the impact of expenditure compositions on economic growth in Afghanistan. The data was collected from the World Bank and Ministry of Finance using a period of 2004 to 2019. The gross domestic product was stated as dependent variable and

public expenditure compositions were included as independent variables. The adjusted Keynesian function was applied to estimate the impact of government expenditure on economic growth. Unit root test, Johansen co-integration test and bound test were checked. All variables were stationary at level and first difference. Hence, Autoregressive Distribution Lag (ARDL) model was applied. The findings expose that there is a long-run relationship between dependent and independent variables. Furthermore, the previews and current expenditures on education and infrastructure are positively correlated with economic growth in Afghanistan. But, security expenditure is negatively linked with growth rate. The adjusted R-squared revealed that 99% variation of dependent variable explained by independent variables. To increase the economic growth rate, the government should adopt precise and accurate control on its spending on defense, as to reduce corruption and mismanagement.

Chandana, Adamu and Musa (2021) investigated the impact of Nigerian government expenditure (disaggregated into capital and recurrent) on economic growth using time series data for the period 1970-2019. The paper employs Autoregressive Distributed Lag (ARDL) model. To ensure robustness of results, the study accounts for structural breaks in the unit root test and the co-integration analysis. The key findings of the study are that capital expenditure has positive and significant impact on economic growth both in the short run and long run while recurrent expenditure does not have significant impact on economic growth both in the short run and long run. The study recommends that government should increase the share of the capital expenditure especially on meaningful projects that have direct bearing on the citizen's welfare. Government should also improve the spending patterns of recurrent expenditure through careful reallocation of resources toward productive activities that would enhance human development in the country.

Egbetunde and Fasanya (2013) explored economic growth and public expenditures relation in Nigeria and found that whereas total public spending has negative effect on economic growth, in disaggregated form, recurrent expenditure has positive impact on economic growth. Muthui, et al. (2013) studied the effect of the components of public expenditure on economic growth using evidence from Kenya and found that government expenditure incurred on education has insignificant positive effect on economic growth. Oni and Ozemhoka (2014) explored the effect of public expenditure on economic growth using evidence from Nigeria and indicated that a positive relationship exists between economic growth and government expenditure. Iyodo, Samuel, Adewole and Ola (2020) examined the effect of non-life insurance penetration could have on economic growth using Nigerian context and demonstrated that, amongst others, non-life insurance penetration is important in the decision to increase economic growth in Nigeria. The authors further indicated that government expenditure has insignificant negative effect on the economic growth of Nigeria. Dandan (2011) investigated government spending and economic growth relationship using evidence from Jordan and showed that aggregate government spending positively impact on economic growth. Oyinlola and Akinnibosun (2013) explored Public expenditure - economic growth relationship using evidence from Nigeria and indicated that economic growth plays significant role in deciding the level of government expenditure in Nigeria.

METHODOLOGY
This study is designed to examine the impact of public expenditure on economic development of Sub-Sahara African region. The research design adopted in this study is the descriptive research method which is largely quasi-experimental. The data used in this study

was collected from Central Bank of Nigeria Statistical Bulletin and Word bank data base. The main tool of analysis is the Ordinary Least Squares (OLS) using the multiple regression method for a period of 34 years, annual data covering 1987– 2020. Statistical evaluation of the global utility of the analytical model, so as to determine the reliability of the results obtained were carried out using the coefficient of correlation (r) of the regression, the coefficient of determination (r^2), the student T-test and F-test.

Model Specification

PCI = f (EXA, ES, CSS, TRS)   1

It is empirically stated as

$PCI = \beta_0 + \beta_1 EXA + \beta_2 ES + \beta_3 CSS + \beta_4 TRS + \mu$ 2

Where

PCI   =   Nigeria Per capita income
EXA   =   Nigeria capital expenditure on Administration
ES   =   Nigeria capital expenditure on Economic services
CSS   =   Nigeria capital expenditure on Social services
TRS   =   Nigeria capital expenditure on Transfers
β_0 =   Regression Intercept
β_1 - β_4 =   Coefficient of the independent variables to the Dependent variable
μ =   Error term

PCI = f (GPEE, GEH, GPEA, GCE/GDP)   3

It is empirically stated as

$PCI = \beta_0 + \beta_1 GPEE + \beta_2 GEH + \beta_3 GPEA + \beta_4 GCE/GDP + \mu$ 4

Where

PCI   =   Ghanaian Per capita income
GPEE   =   Ghanaian capital expenditure on Education
GEH   =   Ghanaian capital expenditure on health
GPEA   =   Ghanaian capital expenditure on Agriculture
GCE/GDP   =   Ghanaian capital expenditure as percentage of GDP
β_0 =   Regression Intercept
β_1 - β_4 =   Coefficient of the independent variables to the Dependent variable
μ =   Error term

Estimation Methods
Dickey-Fuller Test

The common practice of including the time or trend variable in the regression model to data is valid only for stationary time series. When variables are non-stationary, it is most of the time alleviated by taking the first difference. Whenever the t-distribution is not normally distributed, the Dickey-Fuller table is used to determine the overall fit (Khamsi, 2016). This study used the Augmented Dickey-Fuller (ADF) test, which follows the same features as the Dickey-Fuller statistic, by adding the lagged value of the dependent variables (Gujarati & Porter, 2009). ADF test aims at checking for the presence of a unit root in a time series.

Lag-Order Selection model

In economics, the dependence of a variable Y (response variable) on another X (predictor variable) is rarely instantaneous. Very often Y responds to X with a lapse of time. Such a

lapse of time is called a lag (Stock & Watson, 2012). Therefore, the researcher must be careful when choosing the lag length in a model considering the types of data used. When determining the optimal lag length, this is done by considering the relevant information criteria such as Akaike's information criteria (AIC) or Schwarz's Bayesian information criteria (SBIC). By using information criteria, the empirical issue is somewhat resolved since the information criteria with the lowest value are the ones preferred (Stock & Watson, 2012).

Johansen Cointegrating Test

Two economic series are co-integrated if they have a long-run relationship or equilibrium relationship between them (Gujarati & Porter, 2009). Regarding the need to test for cointegration among the time series variables, two approaches can be used viz: Engle-Granger approach which is useful in a simple model with two variables and Johansen's co-integration approach which is suitable for a multivariate series (Wakyereza, 2019). Since the Engle-Granger approach is a single-equation-model-based approach and our model uses more than two variables, the Johansen co-integration methodology becomes convenient to this study.

Granger Causality for VECM

VECM is a special case of the VAR model that uses applications that increase the possibility of measuring the interaction between variables known as Granger causality. The latter is used to determine the direction of causality the unidirectional, bidirectional relationship-or independence between variables. This model aims to decide whether the past value of independent variables, helps to predict the value of the explanatory variable. For instance, A granger causes B, otherwise, it can be called A non-granger causes (Ahmad, 2015).

Vector Error Correction Model (VECM)

The restricted VAR model with cointegration restrictions built into the specification that restricts the long-run behavior of the endogenous variables to converge to their cointegrating relationship by an ECT (Stock &Watson, 2011; Gujarati & Porter, 2006). By not considering the deterministic trend terms, the multivariate VECM can be written as follows:

$$\Delta Yt = c + \sum_{i=1}^{p-1} \rho_i \Delta y_{t-1} + \varphi E_{t-1} + U_t, \ t = 1, \ \ldots..T \qquad 5$$

The ECT is represented by $\Delta Yt = yt - yt, Et-1$, and φ is the speed of adjustment coefficient of the correction. The dependent variable is a function of its lag, function of the lagged values of the other regressor in the model, an error correction term, and a stochastic error (Stock and Watson, 2012).

VECM is obtained VAR Model must be differenced which means that a lag is lost and the VECM will be estimated by (p–1) across the entire Model. Everything on the LHS up to the coefficient of the correction (φ) represents the short-run dynamics. The ECT (Et-1) is what contains the long-run information that is derived from the cointegrating relationship using OLS regression. The ECT is defined by the following equation: $E_{t-1} = Y_{t-1}a - \delta X_{t-1}$. Where the long-run cointegrating relationship between *x* and *y* is shown by the parameters a and δ. The coefficient of the correction captures the speed at which the dependent variable converges to the long-run equilibrium after changes in the explanatory variables (Stock and Watson 2012). It is known as the speed of adjustment.

RESULTS AND DISCUSSION

Table 1: Unit Root Test

Variable	ADF Statistics	MacKinnon @ 1%	MacKinnon @ 5%	MacKinnon @ 10%	Prob.	Order of Int	Conclusion
ADF at Level: Nigeria							
PCI	-1.157424	-3.670170	-2.963972	-2.621007	0.6792	1(0)	Not stationary
EXA	-1.046953	-3.646342	-2.954021	-2.615817	0.2408	1(0)	Not stationary
ES	-1.031945	-3.689194	-2.971853	-2.625121	0.2441	1(0)	Not stationary
CSS	-2.376902	-3.653730	-2.957110	-2.617434	0.1559	1(0)	Not stationary
TRS	-2.791846	-3.646342	-2.954021	-2.615817	0.0703	1(0)	Not stationary
ADF at First Difference: Nigeria							
PCI	-6.347956	-3.670170	-2.963972	-2.621007	0.0000	1(I)	Stationary
EXA	-8.540071	-3.653730	-2.957110	-2.617434	0.0000	1(I)	Stationary
ES	-8.450392	-3.670170	-2.963972	-2.621007	0.0000	1(I)	Stationary
CSS	-9.140045	-3.653730	-2.957110	-2.617434	0.0000	1(I)	Stationary
TRS	-5.150096	-3.661661	-2.960411	-2.619160	0.0002	1(I)	Stationary
ADF at Level: Ghana							
PCI	-2.717534	-3.646342	-2.954021	-2.615817	0.0818	1(0)	Not stationary
GPEE	-1.709571	-3.646342	-2.954021	-2.615817	0.2847	1(0)	Not stationary
GPEA	-1.203646	-3.646342	-2.954021	-2.615817	0.1287	1(0)	Not stationary
GEH	-2.093897	-3.679322	-2.967767	-2.622989	0.2484	1(0)	Not stationary
GCE_GDP	-1.962298	-3.646342	-2.954021	-2.615817	0.2045	1(0)	Not stationary
ADF at First Difference: Ghana							
PCI	-6.313784	-3.653730	-2.957110	-2.617434	0.0000	1(I)	Stationary
GPEE	-9.512505	-3.653730	-2.957110	-2.617434	0.0000	1(I)	Stationary
GPEA	-7.493397	-3.653730	-2.957110	-2.617434	0.0000	1(I)	Stationary
GEH	-8.093021	-3.679322	-2.967767	-2.622989	0.0000	1(I)	Stationary
GCE_GDP	-8.286034	-3.653730	-2.957110	-2.617434	0.0000	1(I)	Stationary

Source: Extract from E-view 9.0 (2021)

ADF test sets a selection criterion that the null hypothesis of a unit root is rejected in favor of the stationary alternative in each case if the t-statistic is lesser than the critical value; also the p-value is less than the critical value of 5% (Chipote & Makhetha-Kosi, 2014). At first sight, the study opted for the ADF test to check the series and it is observed that the variables were non-stationary at levels. However, after the first difference, we found both the series to become stationary (table 4.1). Therefore, there is a possibility to investigate the existence of a long-run relationship among the variables by the use of Johansen cointegration testing procedures

Table 2: Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
Nigeria				
None*	0.456593	77.52743	60.06141	0.0093
At most 1*	0.397252	58.01072	40.17493	0.0452
At most 2	0.199097	11.81053	24.27596	0.7209
At most 3	0.127507	4.706027	12.32090	0.6091
At most 4	0.010606	0.341208	4.129906	0.6217
Ghana				
None *	0.647350	83.35160	69.81889	0.0029
At most 1 *	0.460249	49.99868	47.85613	0.0310
At most 2 *	0.447215	30.26597	29.79707	0.0441
At most 3	0.245731	11.29683	15.49471	0.1939
At most 4	0.068556	2.272620	3.841466	0.1317

Source: Extract from E-view 9.0 (2021)

The results in table 2 of both trace and Trace tests revealed that there is one cointegrating equation from Nigeria while there are two cointegration equations from Ghana. This suggests that there is a long-run relationship between the variables used in this study.

Table 3: VAR lag Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
			Nigeria			
0	-331.5238	NA	937.7199	21.03273	21.26176*	21.10865
1	-289.0937	68.94880*	322.6025*	19.94336*	21.31749	20.39884*
2	-267.0260	28.96389	438.3986	20.12663	22.64586	20.96168
			Ghana			
0	-669.5994	NA	1.41e+12	42.16246	42.39148	42.23838
1	-624.3378	73.55002*	4.06e+11*	40.89612*	42.27024*	41.35160*
2	-600.2622	31.59935	4.86e+11	40.95388	43.47312	41.78894

Source: Extract from E-view 9.0 (2021)

The most popular of the information criteria are the Akaike information criteria (AIC), and Bayesian information criteria (BIC) (Stock and Watson, 2012). Since the value proposed by both AIC, HQIC is lag 1, the optimal lag length in this study is 1.

Table 4: Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
	Nigeria		
TRS does not Granger Cause PCI	32	1.10452	0.3459
PCI does not Granger Cause TRS		3.04943	0.0640
EXA does not Granger Cause PCI	32	0.09056	0.9137
PCI does not Granger Cause EXA		2.60061	0.0927
ES does not Granger Cause PCI	32	1.76534	0.1903
PCI does not Granger Cause ES		0.59752	0.5573
CSS does not Granger Cause PCI	32	0.06429	0.9379
PCI does not Granger Cause CSS		0.51737	0.6019
	Ghana		
GPEE does not Granger Cause PCI	32	0.18192	0.8347
PCI does not Granger Cause GPEE		13.0537	0.0001
GPEA does not Granger Cause PCI	32	2.70258	0.0851
PCI does not Granger Cause GPEA		0.39739	0.6759
GEH does not Granger Cause PCI	32	0.03420	0.9664
PCI does not Granger Cause GEH		8.27175	0.0016
GCE_GDP does not Granger Cause PCI	32	0.96108	0.3952
PCI does not Granger Cause GCE_GDP		1.20835	0.3143

Source: Extract from E-view 9.0 (2021)

The results of the causality test proved that from Nigeria, per capita income granger cause capital expenditure on transfer while there is no causality among other variables in the model. From Ghana, per capita income granger cause public expenditure on education and public expenditure on health while other variables have no causality.

Table 4: Error Correction Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.416268	1.339059	-1.057659	0.3095
D(PCI(-1))	-0.201789	0.186945	-1.079400	0.3000
D(TRS(-1))	-102.4880	282.7782	-0.362433	0.7229
D(EXA(-1))	100.8701	282.5927	0.356945	0.7269
D(ES(-1))	-101.9541	282.7342	-0.360600	0.7242
D(CSS(-1))	102.6884	282.8936	0.362993	0.7224
D(PCI(-2))	-0.095959	0.192034	-0.499699	0.6256
D(TRS(-2))	857.0504	336.9434	2.543603	0.0245
D(EXA(-2))	856.8596	336.8230	2.543946	0.0245
D(ES(-2))	857.1775	336.9530	2.543908	0.0245
D(CSS(-2))	856.7970	337.1378	2.541386	0.0246
D(PCI(-3))	-1.200315	0.237706	-5.049573	0.0002
D(TRS(-3))	-301.3071	314.9329	-0.956735	0.3562
D(EXA(-3))	-301.2693	314.8424	-0.956889	0.3561
D(ES(-3))	-300.9728	314.9139	-0.955731	0.3566
D(CSS(-3))	-301.4647	315.1894	-0.956456	0.3563
ECM(-1)	0.200764	0.252966	0.793640	0.4417
R-squared	0.848555	Mean dependent var		-0.110000
Adjusted R-squared	0.662162	S.D. dependent var		11.75856
S.E. of regression	6.834527	Akaike info criterion		6.978937
Sum squared resid	607.2398	Schwarz criterion		7.772949
Log likelihood	-87.68405	Hannan-Quinn criter.		7.232948
F-statistic	4.552495	Durbin-Watson stat		1.906104
Prob(F-statistic)	0.004333			
C	0.433228	1.916947	0.225999	0.8236
D(PCI(-1))	0.755386	0.288813	2.615482	0.0170
D(GPEE(-1))	0.011026	0.006613	1.667451	0.1118
D(GPEA(-1))	0.182416	0.133902	1.362309	0.1890
D(GEH(-1))	-2.289548	4.426289	-0.517261	0.6109
D(GCE_GDP(-1))	-0.188398	0.135767	-1.387656	0.1813
D(PCI(-2))	0.500335	0.302728	1.652756	0.1148
D(GPEE(-2))	0.002977	0.005361	0.555328	0.5851
D(GPEA(-2))	-0.166119	0.116651	-1.424070	0.1706
D(GEH(-2))	3.554216	4.146468	0.857167	0.4020
D(GCE_GDP(-2))	0.379428	0.141463	2.682179	0.0147
ECM(-1)	-1.037751	0.278946	-3.720253	0.0015
R-squared	0.693675	Mean dependent var		0.322258
Adjusted R-squared	0.500539	S.D. dependent var		11.83687
S.E. of regression	10.58365	Akaike info criterion		7.841143
Sum squared resid	2128.258	Schwarz criterion		8.396234
Log likelihood	-109.5377	Hannan-Quinn criter.		8.022089
F-statistic	3.684119	Durbin-Watson stat		1.633432
Prob(F-statistic)	0.043506			

Source: Extract from E-view 9.0 (2021)

From Nigeria, the estimated error correction results found that public expenditure in Nigeria explains 66.2 percent variation in per capita income within the periods covered in this study, this implies that 33.8 percent could be traced to factors not captured in the regression model. F-statistics and probability justifies that the model is statistically significant while the Durbin Watson statistics justifies the absence of serial autocorrelations. The study found that transfer capital and capital expenditure on economic services have negative but no significant effect on Nigeria per capita income while capital expenditure on community and social services and capital expenditure on per capita income. The positive effect of the variables confirm the a-priori expectations of the study and in line with the Keynesians' opinions on the relevant of government intervention and further justifies the opinions of the welfare economist in government expenditure to bridge the deficiency of the market economy. The positive effect

of the variables confirm the findings of Barlas (2020) that there is a long-run relationship between dependent and independent variables, the findings of Chandana, Adamu and Musa (2021) that capital expenditure has positive and significant impact on economic growth both in the short run and long run while recurrent expenditure does not have significant impact on economic growth both in the short run and long run. The findings of Taban (2010) that there is no significant relationship between government expending and economic growth in Turkey when government expenditure is proxied by government consumption spending, Shahid et al. (2013) examined the impact of government expenditure on economic growth in Pakistan during the period from 1972 to 2009. They further split government expenditure into development expenditure and current expenditure components. Using an autoregressive distributed lag (ARDL) model, the results showed that in Pakistan, current expenditure does not contribute to economic growth. Egbetunde and Fasanya (2013) that whereas total public spending has negative effect on economic growth, in disaggregated form, recurrent expenditure has positive impact on economic growth. The findings of Muthui, et al. (2013) that government expenditure incurred on education has insignificant positive effect on economic growth, Oni and Ozemhoka (2014) that a positive relationship exists between economic growth and government expenditure. However, the negative effect of the variables contradicts our a-priori expectations and contradict the opinions of the Keynesians but validates the classical economists. Empirically the findings in line with the findings of Egbetunde and Fasanya (2013) that total government spending had an insignificant impact on economic growth in Nigeria. Hasnul (2015) that operating government expenditure and expenditure on the education defence and healthcare sectors had no impact on economic growth in Malaysia. Iyodo, Samuel, Adewole and Ola (2020) that government expenditure has insignificant negative effect on the economic growth of Nigeria.

The estimated regression results from Ghana proved that the independent variables can explains 50 percent variation on per capita income while F-statistics and probability justifies that the model is significant, the Durbin Watson found that the model has no autocorrelations within the periods covered in this study. however, the beta coefficient of the variables found that Ghanaian public expenditure on education, agriculture and capital expenditure to total expenditure have positive effect on per capita income but expenditure on health have negative effect on per capita income. The positive effect of the variables confirm the findings of Guandong and Muturi (2016) that public expenditure on the social services sector was found to have a negative impact on economic growth in the study country. Chirwa and Odhiambo (2016) that government spending had a significant negative impact on economic growth in South Africa, both in the short run and in the long run. Sáez et al. (2017) that, while the relationship between government spending and economic growth can be positive or negative, Lupu et al. (2018) that model public expenditures on defence, economic affairs, general public services, and social welfare have a negative impact on economic growth in the study countries.

CONCLUSION AND RECOMMENDATIONS

Conclusion
This study examined the effect of public expenditure and economic development of Nigeria and Ghana using time series data from 1987-2020 which is the post structural adjustment periods. The results found that 66.2 percent variation in per capita income within the periods covered in this study, this implies that while the estimated regression results from Ghana proved that the independent variables can explains 50 percent variation on per capita income; this implies that the variables have more explained variation in Nigeria than Ghana,

furthermore, the study conclude that there is significant relationship between capital expenditure and economic development of the two countries under study.

Recommendations

1. The study recommends that government should increase the share of the capital expenditure especially on meaningful projects that have direct bearing on the citizen's welfare. Capital expenditures on economic services should be directed mainly at the agricultural sector so as to stimulate activities in the economic sectors and, perhaps, reverse the negative effect on economic development.

2. The study recommends that government of the two countries should devote more attention in the allocation of government expenditures. Enforce monitoring and evaluation of public expenditure to ensure that released funds are not misused which will engender effectiveness.

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