Sectoral expenditure and economic growth: The Nigeria experience

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Abstract

The paper aimed at assessing the extent to which government sectoral expenditure affected the level of economic growth in Nigeria. The period of 20 years was covered. The researcher employed multiple regression, Durbin-Watson and correlation analysis. Descriptive statistics was also employed to graphically look at the nature and trend of the data over the period in order to draw useful inference about the parameters. GDP was used to proxy economic growth while other explanatory variables are Agriculture, Industry, Construction, Services and trade. The result of the findings shows that parameters used for the analysis contributed to economic growth except trade. The paper therefore concluded that government sectoral expenditure positively and significantly contributed to economic growth of Nigeria. The recommendation is that efforts should be geared towards strengthening the public sector in Nigeria, insuring transparency and accountability.

Keywords: expenditure, economic growth, output, price stability

Introduction

The major critical function of government expenditure is to maintain reasonable degree of price level stability and an appropriate rate of economic growth that will enhance full development potential and stabilization of the economy. This is achieved when government spending through its fiscal role succeed in maintaining high employment, reasonable degree of price level stability and appropriate rate of economic growth. It is the role of government expenditure to continue to restore price stability mechanism. The economy feels the effect of the government spending more positively when economic growth rate is on the increase and the price level is relatively stable.

According to the Keynesian school, government could reverse economic downturns by borrowing money to the private sector through various spending programmes. Government expenditures are likely to increase employment, increase business activities and contribute positively to economic growth. Government spending through its fiscal operations has important effects on the level of gross domestic product in both short run and long run. It is proven that when government spends too much or very little money relative to the availability of goods and services in the economy, there would be corresponding pressure (increase or decrease) on prices, which may give rise to inflation, deflation or stagnation.

According to Musgrave and Musgrave (1989) [13], the most critical function of government expenditure is to maintain reasonable degree of price level stability and an appropriate rate of economic that will ginger the economy to achieve full development potential and stabilization. Nwinee and Torbiba (2014) [16] opine that economic stabilization is achieved when government spending, through its fiscal role succeeds in maintaining high employment reasonable degree of price level stability and appropriate rate of economic growth, with all

allowances for positive effects on trade, balance of payment, savings investment and productivity.

Scholars on different ways has argued that increase in government expenditure can be a potent tool to stimulate aggregate demand, for a stagnant economy. It is proven that high level of government expenditure and consumption are likely to increase employment, profitability and investment via multiplier effects on aggregate demand.

Based on these background, the study will critically ex-ray the relationship between various government sectoral expenditure and economic growth and how the expenditure affects the level economic growth in Nigeria.

1.2 Statement of Problems

Undoubtedly, Nigeria has been engaged in budgeting where allocations sector by sector are made and funds channeled into national development programmes and project over the years, government spending has risen to a certain level without corresponding rise in the growth of the economy. The economy has been found wanting in different aspect of human development such as infrastructure, electricity, health, insecurity, education, unemployment etc. Nigerians have continued to wallow in abject poverty, while more than 40% live on less than N500 per day. Macro-economic indicators reveal that Nigeria has not fared well in the couple of years despite the large government expenditure stated in the budget of various years.

Objective of the Study

Economic growth has been an important issue in any economic policy looking at the goal it will achieve. The Nigeria economy over the years has experienced a lot of problems yet government expenditure has been on the increase. The capacity of the economy to grow depends on the ability of the expenditure to

stimulates economic growth. It is against this background that the study of the paper is aimed at assessing the extent to which government expenditure in the key sector of economy has affected the level of growth in Nigeria.

Theoretical Review

Some basic theories have been developed by economist in order to support the impact of government expenditure in the Nigerian economy.

Musgrave theory posits that at low level of per capita income, demand for public services tends to be very low, this is so because such income is devoted to satisfying primary needs and when per capital income starts to rise above this level of low income, the demand for services supplied by the public sector such as health, education, transport etc starts to rise, thereby forcing government to increase expenditure on them.

Wagner's law which in the theory of increasing state activities contended that there are inherent tendencies for the activities of different layers of a government to increase both intensively and extensively thereby pinpointing that there is a functional relationship between the growth of an economy and government activities with the result that the government spending increases more proportionately with income. He maintained that expenditure increases national output.

Another theory is the growth theory which establishes a link between government and economic growth. They state that government affects the accumulation of physical capital directly through investment in government capital. Based on the theory, government can influence the economic growth in three ways namely, the maintenance of the rule of law, the overall size of government expenditure and the practice of panning.

Keynesian Theory also looked at the relationship between public expenditure and economic growth as an exogenous factor which can be utilized as a policy instrument to promote economic growth. From the Keynesian thought, government expenditure contributes positively to economic growth. Hence, an increase in government consumption in likely to lead to an increase in employment, profitability and investment through multiplier effects on aggregate demand. As a result, government expenditure argument the aggregate demand, which provokes an increased output depending on expenditure multipliers.

Empirical Review

In Nigeria and other parts of the world, a number of studies on the effect of sectoral expenditure on economic growth have beed conducted. A number of these studies focuses on the relationship between government expenditure and economic growth, though diverse results have also been stated.

Usman (2011) [19] empirically examined the public expenditure and economic growth in Nigeria. The study focuses on sectoral government expenditure which are decomposed to three stream, expenditure in building human capital-public expenditure on education and health, expenditure in building infrastructures, public expenditure on transport and communication, and other social services and expenditure on administration to study the impact of government expenditure on economic growth. The result reveal that spending doesn't have impact on growth in the short run, however, there is long run relationship between public expenditure and economic growth.

Fajingbesi and Odusola (1999) [7] investigated the relationship between government and economic growth in Nigeria over the period of 1970-1995. The economic result indicated that real government capital expenditure has a significant positive influence on real output. However, the result showed that real government recurrent expenditure affects economic growth only but little.

Okanta (2009) [17], in a study, the impact of public education expenditure on economic growth in Nigeria between 1990-2008, using simple, bivariate regressions shows that public education expenditure are statistically significant in affecting real GDP and real per capita in Nigeria. Also that expenditure are not statistically significant in influencing economic growth using multivariate regression. Also, study by Ighodaro an Okiakhi (2010) [18] used time, series data and applied co-integration test and granger causality test to examine the relationship between government expenditure and economic growth in Nigeria. The result show negative impact of public expenditure on economic growth in Nigeria. The study concluded that government capital spending in industries and agriculture, if property managed will raise the nations production capacity and employment, which in turn will increase economic growth in Nigeria.

Easterly and Rebeto (1993), investigated the impact of government expenditure and income of gross domestic product and discovered that government activities influence the direction of economic growth in Nigeria. The significant effects of both government capital and recurrent expenditure on economic growth were underscored.

Alexander (1990) [2] applied OLS method for sample of 12 organizations for economic cooperation and development countries panel ranging from 1959-1984. The result revealed, among others, that growth of government spending has significant negative impact on economic growth Laudau (1983) investigated the relationship between government expenditure and economic growth, using varying sample periods in 104 countries covering both developed and developing countries. Economic growth was found to be positively related to total investment spending in education.

Chude and Chude (2013) [4] while studying the impact of government expenditure on economic growth in Nigeria from 1977-2012 found that total government expenditure on education has significant effect on Gross Domestic Product. But Adewara and Oloni (2012) [1] in their work public expenditure and economic growth in Nigeria examined the relationship between public expenditure compositions from 1960-2008 on economic growth using the vector Auto regressive model (VAR). The study state that expenditure on education has failed to enhance economic growth due to high rate of rent seeking in the country and high rate of unemployment. In the view of Nwinee and Torbibra (2014) [16], they investigated government sectoral spending and economic growth in Nigeria, the short run estimation results show that government spending on education had a positive but statistically significant relationship with consumer price index (CPI). It means that government spending on education does not significantly increase the output level of GDP but significantly affects price stability in the Nigeria economy.

Mitchel (2005) [12] on the investigation of the impact of government spending on economic performance in developed

Countries. They looked at countries that have significantly reduced government spending as a share of national output and analyzed the economic consequences of these reforms. He opine that a large growing government is not conducive to better economic performance. In the work of Davarajan *et al.* (1996) who studied different expenditure component on growth. The study covered 43 continues for the period of 1975-1992. The study shows that recurrent expenditure has positive impact on growth while capital expenditure exact negative impact on growth. But when a sub sample of developed countries were considered, the result was reversed indicating that, the earlier result might be as a result of corruption and inefficiency in the use of public funds in the developed countries.

Roberison, *et al.* (2014), investigated government expenditure and growth in Nigeria using Augmented Dickey fuller (ADF) test for stationarity, they discovered that government expenditures will increase inflow of better living inflow of foreign and local businessmen and relevant capital that will enhance growth and development of an economy. They reveal that there is an inverse relationship between government expenditure on health sector and economic growth in Nigeria. Yusuf *et al.* (2015) [20] on the analysis of impact of sectoral Government Expenditure on economy in Nigeria, using Autoregressive distributed lag model, reveals that public expenditure have not performed well to the expectation in promoting the economic growth, contrarily to expectation, government expenditure on the education, Defence and Agricultural sector have failed to promote the economic growth.

Nitoy *et al.* (2003) [14], examined the growth effects of government expenditure for a panel of thirty countries including Nigeria, employing disaggregated approach. The research result primarily showed that the share of government capital expenditure is positively correlated with economic growth, but current expenditure is insignificant. The result at sectoral level revealed that government investment and total expenditure on education are the only outlays that remain significantly associated with growth through the analysis. Josaphet and Oliver (2000) [9], investigated the impact of government spending on economic growth in Tanzama using time series data for 32 years. They formulated a simple growth accounting model. It was found that increased productive expenditure has a negative impact on growth and which particular appears to be associated with increased private consumption. The outcome revealed that expenditure on hum capital investment was insignificant in their

regression and confirmed the view that public investment in Tanizania has not been productive as at the time of the research. It is evidenced that from the array of several literature, it could be seen that there are diverse results shows that government expenditure both positive and negative significant effect on economic growth.

Methodology
The study adopted multiple regression, Durbin-waston and the correlation analysis in assessing and evaluating the relationship between sectoral expenditure and economic growth in Nigeria. Descriptive statistics was also employed to graphically look at the nature and trend of the data over the period of 20 years (between 1997-2017) in order to draw useful inference about the parameter.

Model Specification
The econometric model used was to determine the relationship between Gross Domestic Product (GDP) and government sectoral expenditure (Agriculture, Industry, Construction, Services and Trade).
The paper is based on the null hypothesis that government sectoral expenditure does not have positive significant effect on economic growth of Nigeria.
The model is specified as follows:
GDP = F (Agric, ind, Cons, Ser. And Trd.)
Where
GDP = Gross Domestic Product
Agric = Total Expenditure on Agriculture
Ind = Total expenditure on Industries
Cons = Total expenditure on construction
Ser = Total expenditure on services such as administration, education, transport etc
Trd = Total expenditure on trade

Table 1

Descriptive Statistics			
	Mean	Std. Deviation	N
GDP	43367812.5990	16885506.85031	20
Agriculture(X1)	10329632.3695	4158790.00359	20
Industry(X2)	11083763.7285	1780222.68726	20
Construction(X3)	1330077.2245	728028.51874	20
Trade(x4)	6310575.1125	3666196.46896	20
Services(X5)	6442075.1125	3481396.72034	20

Table 2

Correlation Analysis		GDP	Agriculture(X1)	Industry(X2)	Construction(X3)	Trade(x4)	Services(X5)
Pearson Correlation	GDP	1.000	.987	.923	.970	.976	.994
	Agriculture(X1)	.987	1.000	.931	.929	.945	.971
	Industry(X2)	.923	.931	1.000	.846	.888	.890
	Construction(X3)	.970	.929	.846	1.000	.950	.969
	Trade(x4)	.976	.945	.888	.950	1.000	.988
	Services(X5)	.994	.971	.890	.969	.988	1.000
Sig. (1-tailed)	GDP	.	.000	.000	.000	.000	.000
	Agriculture(X1)	.000	.	.000	.000	.000	.000
	Industry(X2)	.000	.000	.	.000	.000	.000
	Construction(X3)	.000	.000	.000	.	.000	.000
	Trade(x4)	.000	.000	.000	.000	.	.000
	Services(X5)	.000	.000	.000	.000	.000	.
N	GDP	20	20	20	20	20	20

Agriculture(X1)	20	20	20	20	20	20
Industry(X2)	20	20	20	20	20	20
Construction(X3)	20	20	20	20	20	20
Trade(x4)	20	20	20	20	20	20
SERVICES(X5)	20	20	20	20	20	20

The correlation shows that there is a strong relationship between the explanatory variables and

The response variable, with high significant values of.987, 923,.970 and.994.

Table 3

Variables Entered/Removed[a]				
Model	Variables Entered		Variables Removed	Method
1	Services(X5), Industry(X2), Construction(X3), Agriculture(X1), Trade(x4)[b]		.	Enter
a. Dependent Variable: GDP				
b. All requested variables entered.				

Model Summary[b]									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	1.000[a]	1.000	1.000	274213.26803	1.000	14406.234	5	14	.000	1.834

a. Predictors: (Constant), Services(X5), Industry(X2), Construction(X3), Agriculture(X1), Trade(x4)

b. Dependent Variable: GDP

Interpretation

From the summary output analysis of the regression model, reveals that the fitted model appeared to be reliable and efficient for future forecast according to the predictive test with R^2 of 1.000 with a predictive power of 100.00% which shows that about 100.00% of the variations in the dependent variable Y (The economic growth) are accounted for by the explanatory variables (The Agriculture (X1), Industry (X2), Construction (X3), Trade (x4), Services (X5)). This means that 100.00% of the variation in

Y is explained by the fitted regression equation.The adjusted R^2 with value approximately 100.00% implies that our model has accounted for 100.00% of the variation in economic growth none of the remaining variables can be explained by the stochastic factor or error term. The f-statistic with significant value 0.000 and Durbin-Watson of 1.834, shows that there is a significant relationship between Agriculture (X1), Industry (X2), Construction (X3), Trade (x4), Services (X5), on the Economic growth of the country.

Table 4

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5416233789415503.000	5	1083246757883100.600	14406.234	.000[b]
	Residual	1052700829081.186	14	75192916362.942		
	Total	5417286490244584.000	19			
a. Dependent Variable: GDP						
b. Predictors: (Constant), Services(X5), Industry(X2), Construction(X3), Agriculture(X1), Trade(x4)						

Interpretation

The Joint Analysis of Variance (ANOVA), shows that all the regression parameters are jointly significant to the model with P-value of 0.000 which is less than 0.05 level of significant. The

result shows that the parameter have significant effect on GDP. This explains the relationship between explanatory variables on the economic growth of the nation.

Table 5

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	309092.401	780985.522		.396	.698
	Agriculture(X1)	1.174	.105	.289	11.227	.000
	Industry(X2)	1.038	.115	.109	9.043	.000
	Construction(X3)	4.433	.378	.191	11.716	.000
	Trade(x4)	-.212	.146	-.046	-1.457	.167
	Services(X5)	2.309	.254	.476	9.073	.000
a. Dependent Variable: GDP						

The Model: $Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + e_i$

GDP = CONSTANT+ AGRICULTURE(X1), INDUSTRY(X2), CONSTRUCTION(X3), TRADE(x4), SERVICES(X5) + e_i

= 309092.401+ 1.174X$_1$ + 1.038X$_2$ + 4.433X$_3$ – 0.212X$_4$ + 2.309X$_5$ + ei

agriculture(x1), industry(x2), construction(x3), services(x5), contributed to GDP with a significant levels of 0.000, 0.000, 0.000 which is less than 0.05 levels, while trade did not contribute to the economic growth of the country during this period of study, with value 0.167 This explains the significant rate at which the other explanatory variables have Boosted the economic growth of the Nigeria.

Interpretation

The summary of the fitted multiple regression line shows that

Table 6

Residuals Statistics					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	22012578.0000	69263352.0000	43367812.5990	16883866.15337	20
Residual	-264550.96875	679621.50000	.00000	235383.31885	20
Std. Predicted Value	-1.265	1.534	.000	1.000	20
Std. Residual	-.965	2.478	.000	.858	20
a. Dependent Variable: GDP					

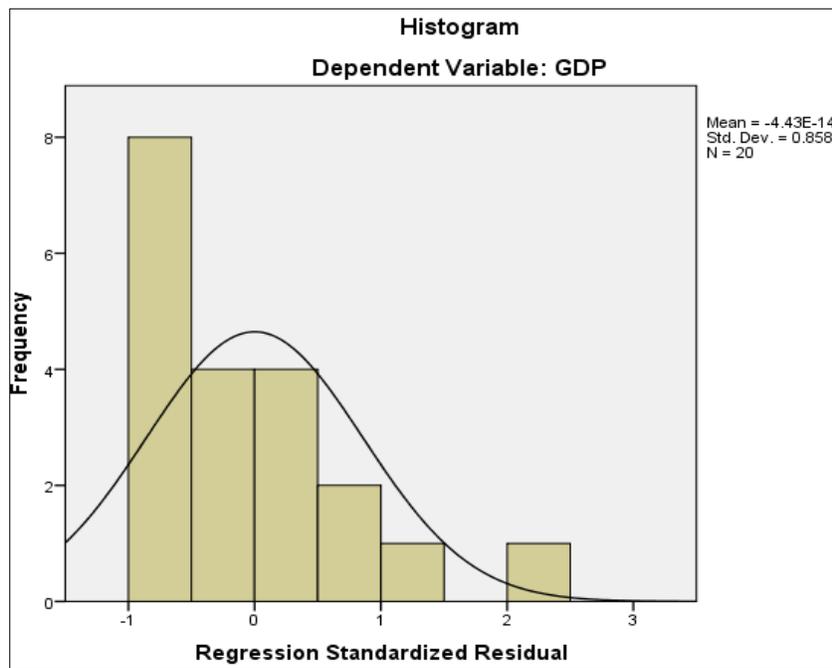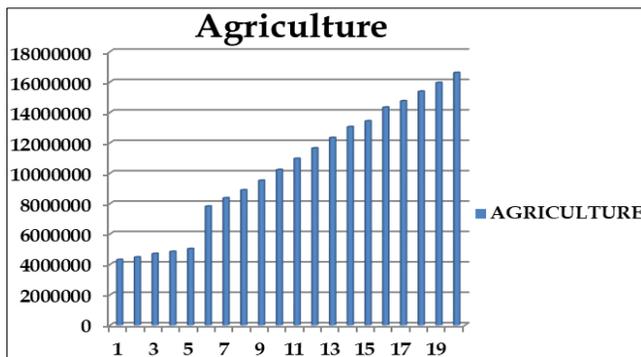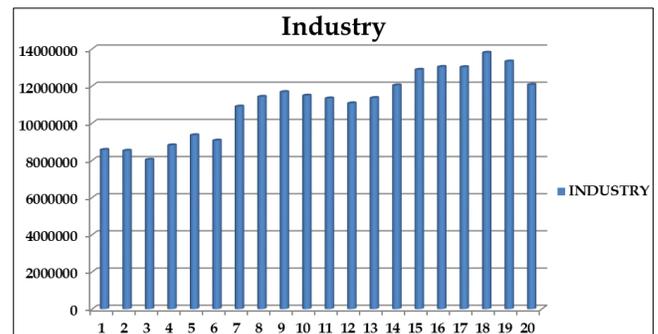## Charts

Fig 1

Fig 2

Fig 3

The descriptive statistics using the graphical method depicts the information obtained from the period of study. The graphs shows that Agriculture, Industry, Construction, Services (which include Education, Administration) over the years has busted the economic growth of the nation while Trade as seen somehow did not contribute for some period of time. This finally shows the relationship between the parameters of interest to GDP.

Conclusion
The paper has assessed and evaluated the relationship between the Gross Domestic Product and Economic growth in Nigeria. Based on the analysis, it showed that all the parameters used for the analysis such as Agriculture, Industry, Construction, and Services contributed to economic growth while trade did not contribute to growth during the period of the study. The researcher therefore conclude that government sectroal expenditure have a positive significant effect on economic growth of Nigeria.

Recommendation
Based on the findings and concluding the following recommendations are made;
- Government should reform our trade policy putting up a structure for planning, implementation monitoring, control and evaluation of the policy for effectiveness and efficiency of the sector in our country.
- Efforts should be made to strength the public sector in Nigeria to ensure transparency and accountability in the system.

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