Chapter 5
Social and Community Services Government Expenditure and Nigeria's Economic Growth

Okezie A. Ihugba and Asoluka C. Njoku

Abstract Government expenditures are very crucial instruments for economic growth at the disposal of policy makers in developing countries like Nigeria. The study, "total government expenditure on social and community services and its effect on economic growth in Nigeria", is an attempt at highlighting the quantity and quality of national commitment (through public expenditure) to education, health and the socially and economically disadvantaged using time series data from 1961 to 2013, obtained from the Central Bank of Nigeria Annual Report and Statement of Account. Using error correction model (ECM), the results indicate that total expenditure on social and community services is not statistically significant but has a positive relationship on economic growth in Nigeria in the long run, while in the short run, total expenditure on social and community services is highly and statistically significant and has a positive relationship on economic growth in Nigeria, and the speed of adjustment to equilibrium is 44 % within a year when the variables wander away from their equilibrium values. The result of Granger causality does validate the applicability of Wagner's law in Nigeria but doesn't support a unidirectional causality from public expenditure to growth and thereby not validating the applicability of Keynesian approach in the country. The result has an important implication in terms of policy and budget implementation in Nigerian. We conclude that economic growth has a positive relationship with total expenditure on social and community services and recommends that there is need to increase the allocation meant for the sectors and also ensure that the resources are properly managed and used.

Keywords Social expenditure • Economic growth • Nigeria

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5.1 Introduction

Government expenditure is one of the tools used by government to sustain and accelerate economic growth; it includes expenditure on programmes that try to alleviate the suffering of the less privileged. Economic growth refers to increase in a country's potential GDP which must be sustained for a developing economy to break the circle of poverty. The social and community services sector includes those services that non-payer cannot be excluded from (such as street lighting), services which benefit all of society rather than just the individual who uses the service (such as public education and health) and services that encourage equal opportunity and those services to people who are socially and economically disadvantaged or who have special needs for care and support. Community services, in this definition, comprise child care services, nursing homes, accommodation for older people, other residential care services and non-residential care services (such as information, referral and counselling), advocacy and representation and employment placement services for people experiencing disadvantage, delivered by not-for-profit, government and for-profit organisations.

According to Dickey and Fuller (1979), the mechanism in which government spending on public infrastructure is expected to affect the pace of economic growth depends largely upon the precise form and size of total public expenditure allocated to economic and social development projects in the economy. When public expenditure is incurred, by itself it may be directed to particular investments or may be able to bring about re-allocation of the investible resources in the private sector of the economy. Wagner (1890) introduced a model that public expenditures are endogenous to economic development, i.e. growth in the economy also causes public sector expenditures to expand. Keynes (1936) and his supporters, on the other hand, raise the thought that during recession times, the use of fiscal policies boosts economic activities, i.e. expansionary fiscal policies, expanding public expenditures and increase national output. Wagner's law and the Keynesian theory present two opposite perceptions in terms of the relationship between public expenditure and growth in national output. While according to Wagner's approach causality runs from growth in national output to public expenditure, the Keynesian approach assumes that causality runs from public expenditure to growth in national output in times of recessions. Endogenous growth theory gives governments a theoretical basis for actively fostering growth.

According to Okoro (2013), the relationship between government expenditure and economic growth has continued to generate a series of debate among scholars. Government performs two major functions – protection (and security) and provisions of certain public good (Al-Yousif 2000). Most studies argue that increase in government expenditure on socio-economic and physical infrastructures encourages economic growth. For example, government expenditure on health and education raises the productivity of labour and increases the growth of national output. Similarly, expenditure on infrastructure such as roads, communications, power, etc. reduces production costs and increases private sector investment and profitability

of firms, thus fostering economic growth. As observed by Al-Yousif (2000) and Cooray (2009), Abdullah (2000), Ranjan and Sharma (2008) and reported by Okoro (2013) that expansion of government expenditure contributes positively to economic growth. The study carried out by Landau (2003) on the relationship between public expenditure and social and economic infrastructure like education, health, transport, communication, water disposal, electricity, water and sanitation concluded that there was a positive relationship.

In Nigeria, rising government expenditure has not translated to meaningful growth and development, as the country ranks among the poorest countries in the world. In addition, many Nigerians have continued to wallow in abject poverty, while more than 50 % live on less than US$2 per day. Coupled with this is dilapidated infrastructure (especially roads and power supply) that has led to the collapse of many industries, including high level of unemployment (Nurudeen and Usman 2010). The present study aims to throw more light on this issue by examining empirically the relationship between total government expenditure on social and community services and Nigeria's economic growth for the period 1961–2013 in the short and long run. Two hypotheses are addressed as follows:

1. Total government expenditure on social and community services has no significant long- and short-run impact on Nigeria's economic growth.
2. Total government expenditure on social and community services does not Granger cause Nigeria's economic growth.

5.2 Trend and Growth Pattern of Government Spending on Social and Community Services

Government expenditure in the social and community services sector does not show marked improvement until lately. The total expenditure and growth of expenditure on social and community services in Nigeria are shown below:

Figure 5.1 shows that the highest allocation within the period of study was in 2013. Total expenditure on social and community services growth was highest in 1974 (384.9 %), and at that same year, the GDP grew by 11 %. The growth rate also shows that in every year the country had a change of government; there was always a high growth rate which falls the following year. In 1964 it was 20.6 and reduced to 11.0 in 1965, in 1980 it was 288.1 and reduced by −42.5 in 1981 and in 1985 it was 218.3 and reduced by −34.6 in 1986. In 1993 when Gen. Abacha took over government, it was 117.3 and reduced by −21.4 % in 1996. In 1999, the growth rate was 198.6 % and reduced by –45.8 % in 2000; in 2003, it was 77.7 % and reduced by −41.5 % in 2004. In 2008, the late Yar'Adua increased the allocation by 98.8 % and reduced it by −6.0 % in 2009. President Jonathan increased it by 67.2 % in 2010 and remained high (19.8 %) in 2011 which was an election year and increased by 1.2 % in 2012 when the government in power didn't need the votes of Nigerians (see Fig. 5.2).

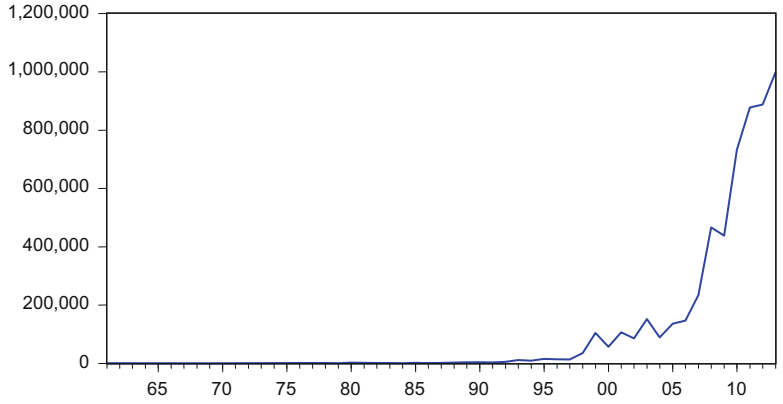

Fig. 5.1 Total government expenditure on social and community service 1961–2013. Source: CBN 2014

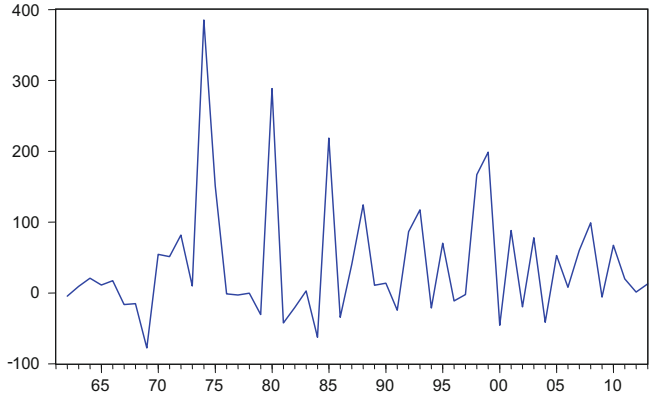

Fig. 5.2 Percent change in total government expenditure on social and community service 1961–2013. Source: Computed by the Authors 2015

5.3 Methodology of the Study

This paper uses the cointegration and error correction methods to analyse the relationship between total government expenditure on social and community services and Nigeria's economic growth in the short- and long-run period. The framework for the study has its basis on the Keynesian and endogenous growth models. The data and their relationships are defined as follows:

1. Total government expenditure on social and community services: This is total government expenditure on education, health and other community and social services.

2. Political stability: This represents the dummy variable used to capture the investment climate in Nigeria. Years of military rule and civil unrest imply instability and are represented by (0), while years of civil rule that indicate stability are represented by (1).
3. Inflation: This is the percentage change in the general price level of goods and services.
4. Real gross domestic product: This measures economic growth; it is the monetary value of all the finished goods and services produced in Nigeria within 1 year. It includes all of private and public consumption, government outlays and investments and exports less imports.
5. Exchange rate: The price of Nigeria's currency in terms of another currency.
6. Population growth rate: It is the rate at which the number of Nigeria's population increases in a given time period as a fraction of the initial population. The relationship between economic growth and population growth in this study is assumed to be negative because of the unemployment problem. Average unemployment rate between 1961 and 2013 is 8.7 % while that of population growth rate is 2.4 % showing disparity in the purchasing power consumption ratio.
7. Money supply: A measure of money supply that includes cash and checking deposits (M1) as well as near money. "Near money" in M2 includes savings deposits, money market mutual funds and other time deposits, which are less liquid and not as suitable as exchange mediums but can be quickly converted into cash or checking deposits. It is expected that an increase in money supply will lead to increase in physical capital which will increase economic growth.

The study made use of annual time series data on a number of macroeconomic variables between 1961 and 2013 inclusive from both local and foreign sources. The data were obtained from various CBN statistical bulletin and World Bank Group–World Development Indicator (WDI) (Table 5.1).

Table 5.1 A priori signs of the variables

Explanatory variables	Abbreviations	Expected sign
Total government expenditure on social and community services	TGEXPSCS	Positive
Real gross domestic product	RGDP	Positive
Exchange rate	EXR	Negative
Inflation rate	INF	Negative
Political stability	PS	Positive
Money supply	M2	Positive
Population growth rate	PGR	Negative

Hypothesis 1 Based on the literature, we hypothesise that there is a significant relationship between economic growth, total government expenditure on social and community services, population growth rate, exchange rate, political stability, money supply and inflation rate.

5.4 Model Specification

We undertook the cointegration test to ascertain if there is a long-run equilibrium relationship between or among variables. If the variables are cointegrated, it means that the result will be used for meaningful analysis, leading to good decisions.

We specify the model based on the hypothesis as

$$\text{RGDP} = f\,(\text{TGEXPSCS},\ \text{INF}, \text{EXR}, \text{PS},\ \text{M2}, \text{PGR}) \tag{5.1}$$

where RGDP is the economic growth, TGEXPSCS is the total government expenditure on social and community services, PGR is the population growth rate, EXR is the exchange rate, PS is the political stability, MS is the money supply, INF is the inflation rate.

RGDP, TGEXPSCS and M2 are in logarithmic values; political stability is a dummy variable, while the others are rates. In log stochastic form, this can be rewritten as

$$\begin{aligned}\text{LRGDP}_\text{t} = {} & \text{c0} + \text{c1 TGEXPSCS}_t + \text{c2LMS}_t + \text{c3 EXR}_t + \text{c4PS}_t + \text{c5PGR}_t \\ & + \text{c6INF}_t + e_t\end{aligned} \tag{5.2}$$

where GDP is the economic growth at time *t*, TGEXPSCS is the total government expenditure on social and community services at time *t*, PGR is the population growth rate at time *t*, EXR is the exchange rate at time *t*, PS is the political stability at time *t*, MS is the money supply at time *t*, INF is the inflation rate at time *t*, c0 is the intercept, c1–c6 is the intercept, *e* is the error term.

5.5 Data Analysis Techniques

5.5.1 Unit Root Test

- In order to avoid estimating spurious regression, the stochastic properties of the series were tested. This we did by testing for unit root which involved testing the order of integration of the individual series under consideration. Several procedures for the test of order of integration have been developed in which the two most popular are the (ADF) augmented Dickey and Fuller (1981) and (PP)

Phillips and Perron (1998) which will be employed to perform the test. Table 5.2 reports the results of the ADF and PP unit root tests. The ADF and PP tests rely on rejecting a null hypothesis of unit root in favour of the alternative hypothesis of stationarity. The tests were conducted with or without a deterministic trend for each of the series in order to ascertain the level of their stationarity. The general form of the ADF is estimated by the following regression:

$$\Delta y_t = ao + a_1 y_{t-1} + \sum_{i=1}^{n} a\Delta y_1 + e_t \tag{5.3}$$

$$\Delta y_t = ao + a_1 y_{t-1} + \sum_{i=1}^{n} a_1 \Delta y_1 + \vartheta_t + e_t \tag{5.4}$$

where y_t is the time series, it is a linear time trend, Δ is the first difference operator, ao is the constant, n is the optimum number of lags in dependent variable, e_t is the random error term.

The results of the stationarity (unit root) test in Table 5.3 indicate that total government expenditure on social and community services (LTGEXPSCS), economic growth (LGDP), population growth rate (PGR), inflation rate (INF), exchange rate (EXR) and money supply (LMS) in Nigeria are stationary at first difference (i.e. they are I *(1)* processes) which sets the stage for cointegration test.

The residual of the long-run static regression in Fig. 5.3 indicates mean reversion, thereby pointing to the likelihood of cointegration. To confirm this view, a more formal test is conducted below.

The ADF test statistic (determined on constant, no trend basis) for the residual of the cointegrating equation is −3.702358. Since the ADF test statistic of −3.702358 is less than the 10 %, 5 % and 1 % levels of significance (−2.597285, −2.918778 and −3.562669), we reject the null hypothesis of no cointegration and accept the alternative hypothesis that there is cointegration.

Table 5.4 shows the estimated result of the cointegrating Eq. (5.2).

5.6 Discussion

The results show an *R*-square of about 53.0 %, indicating that about 53 % change in dependent variable (DLGDP) is jointly explained by the explanatory variables total government expenditure on social and community services (LTGEXPSCS), population growth rate (PGR), inflation rate (INF), exchange rate (EXR), political stability (PS) and money supply (LMS). On the test of individual significance, only exchange rate (EXR), political stability (PS) and money supply (LMS) performed well, while total government expenditure on social and community services (LTGEXPSCS), population growth rate (PGR) and exchange rate (EXR) did not perform well.

Table 5.2 ADF and PP unit root test

Variable		ADF	1 %	ADF test				PP test	
				5 %	10 %	PP	1 %	5 %	10 %
LGDPGR	Level	0.31	−3.56	−2.92	−2.60	0.21	−3.56	−2.92	−2.60
	1st difference	−5.20*	−3.56	−2.92	−2.60	−5.20*	−3.56	−2.92	−2.60
LTGEXPSCS	Level	−0.02	−3.56	−2.92	−2.60	0.12	−3.56	−2.92	−2.60
	1st difference	−8.49*	−3.56	2.92	−2.60	−8.49*	−3.56	−2.92	−2.60
PGR	Level	−2.01	−3.56	2.92	−2.60	−2.16	−3.56	−2.92	−2.60
	1st difference	−4.27*	−3.56	−2.92	−2.60	−4.18*	−3.56	−2.92	−2.60
EXR	Level	0.10	−3.56	−2.92	−2.60	0.75	−3.56	−2.92	−2.60
	1st difference	−3.75*	−3.56	−2.92	−2.60	−3.58*	−3.56	−2.92	−2.60
LMS	Level	−0.38	−3.56	−2.92	−2.60	0.18	−3.56	−2.92	−2.60
	1st difference	−3.93*	−3.56	−2.92	–2.60	–3.83*	–3.56	–2.92	–2.60
INF	Level	–3.36	–3.56	–2.92	–2.60	–3.19	–3.56	–2.92	–2.60
	1st difference	–7.41*	–3.56	2.92	–2.60	–13.5*	–3.56	–2.92	–2.60

* signifies that the alternative hypothesis of no unit root is adopted.

Table 5.3 Cointegrating residual: *t*-statistic

Null hypothesis: ECM has a unit root			
Exogenous: constant			
Lag length: 0 (automatic—based on SIC, maxlag = 10)			
		t-Statistic	Prob.*
Augmented Dickey–Fuller test statistic		–3.702358	0.0068
Test critical values	1 % level	–3.562669	
	5 % level	–2.918778	
	10 % level	–2.597285	

* one-sided *p*-values

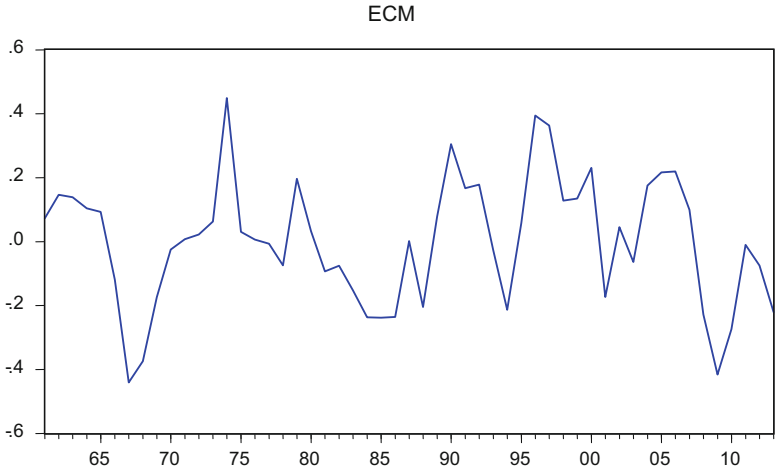

Fig. 5.3 Cointegration residual graph

Table 5.4 Total government expenditure on social and community services and Nigeria's economic growth 1961–2013 (ordinary least squares technique)

Dependent variable	Explanatory variables	Coefficients	Standard error	*t*-Statistic	(Prob.)
DLGDP	C	0.116977	0.051719	2.261764	0.0286
	DLTGEXPSCS	0.042573	0.043143	0.986790	0.3290
	DEXR	0.008842	0.003671	2.408597	0.0202
	DLMS	0.372304	0.183862	2.024904	0.0488
	DPGR	−0.093062	−0.356924	−0.260733	0.7955
	PS	−0.085126	0.048855	−1.742435	0.0883
	DINF	0.000547	0.001799	0.304090	0.7625

R-squared = 0.53, adjusted *R*-squared 0.44, DW = 2.12, *F* = 0.004255

It failed the t-test of significance at 1, 5 and 10 % levels of significance as reflected in Table 5.4 above. This reveals the presence of multicollinearity among the variables in the estimated model. A Durbin–Watson (DW) statistic of 2.12 which falls into the acceptable zone of 1.5 and 2.5 shows the absence of serial correlation.

Meanwhile, 1 % change in total government expenditure on social and community services (LTGEXPSCS) will bring about a positive change of 0.042573 economic growth (DGDP): this is not in line with bibliography that government investment through the injection of income resulting in greater spending in the general economy can lead to economic growth. A change in population growth rate (DPGR) will bring a negative change of −0.093062 % in economic growth (DLGDP). Political stability has a negative relationship with economic growth (DLGDP): a percent increase in political stability will decrease economic growth (DLGDP) by 0.09 % which is not in line with our a priori expectation and also going by the nature of what good governance brings to an economy. The negative relationship may not be unconnected with mismanagement and diversion of public funds by government officials and political appointees. Money supply has a positive relationship with economic growth (DLGDP): a percent increase in political stability will increase economic growth (DLGDP) by 0.37 % which is in line with our a priori expectation. A change in inflation rate (INF) will bring a positive change of 0.000547 % in economic growth which is not in line with our a priori expectation. Exchange rate (EXR) has a positive relationship with economic growth (DLGDP); a percent increase in exchange rate will increase economic growth (DLGDP) by 0.008842.

5.7 The Short-Run Dynamics: Error Correction Model (ECM)

In the long run, economic growth can interact with only three variables to determine the long-term behaviour of real GDP. However, in the short run, total government expenditure on social and community services (LTGEXPSCS), exchange rate (EXR) and money supply turned out to be significant determinants of response variable. These variables are shown in the estimating equation in Table 5.5. The adjusted *R*-squared of 0.45 expresses the fact that the explanatory variables explain 45 % of the short-term variations in real GDP. The equilibrium error term is non-zero (highly statistically significant), which goes to show that the adjustment to short-run disequilibrium is not completed in 1 year but rather in about 2 years as only 44 % of the adjustments can take place in the first year.

5.7.1 Causality Test

In order to determine which variable in the model Granger cause each other, the Granger causality test advanced by Granger (1969) is used. The *F*-statistics is used to reject or accept the null hypothesis of no causation between the variables when *F*-statistics is greater than 2 and less than 2, respectively.

Table 5.5 Error correction model

Dependent variable	Explanatory variables	Coefficients	Standard error	*t*-Statistic	(Prob.)
DLGDP	C	0.035126	0.054226	0.647775	0.5205
	DLTGEXPSCS	0.080489	0.041367	1.945726	0.0581
	DINF	−0.000620	0.001690	−0.367157	0.7153
	DEXCR	0.005979	0.003487	1.714642	0.0934
	DLNMS	0.729387	0.203988	3.575641	0.0009
	DPGR	−0.225483	0.329729	−0.683842	0.4977
	PS	−0.055195	0.045780	−1.205656	0.2344
	ECML	−0.437824	0.141105	−3.102821	0.0033

R-squared = 0.45, adjusted *R*-squared 0.36, DW = 1.85, *F* = 0.000231

Table 5.6 Pairwise Granger causality test

Direction of causality	*F*-statistic	*P*-value	Decision	Lag length
DLGDP → DLTGEXPSCS	8.63	0.0007	Do not reject	2
DLTGEXPSCS → DLGDP	1.54	0.23	Reject	2
DLGDP → DLTGEXPSCS	7.83	0.0003	Do not reject	3
DLTGEXPSCS → DLGDP	1.89	0.14	Reject	3
DLGDP → DLTGEXPSCS	6.48	0.0004	Do not reject	4
DLTGEXPSCS → DLGDP	1.97	0.12	Reject	4

The arrow shows the direction of causality

The Granger causality test is estimated from the following equations:

$$\Delta \text{DLGDP}_t = \sum_{i=1}^{n} \alpha_i \Delta \text{DLTGEXPSCS}_{t-i} + \sum_{i=1}^{n} \beta_j \Delta \text{DLGDP}_{t-j} + u_{1t} \tag{5.5}$$

$$\Delta \text{DLTGEXPSCS}_t = \sum_{i=1}^{n} \lambda_i \Delta \text{DLGDP}_{t-i} + \sum_{i=1}^{n} \gamma_j \Delta \text{DLTGEXPSCS}_{t-j} + u_{2t} \tag{5.6}$$

where α, β, λ and γ are the respective coefficient of the variables, t represents time while i and j are their lags and u_{1t}andu_{2t} are uncorrelated white noise error term. The null hypothesis is $\alpha = 0$ for all i_s and $\gamma = 0$ for all j_s while the alternative hypothesis is given as $a_i \neq 0$ and $\gamma_j \neq 0$.

Since causality test is affected by the number of lags included, we tested using 2, 3 and 4 lag lengths. The results in Table 5.6 show that at up to four lag lengths at 1 % level of significance, DLGDP is found to Granger cause DLTGEXPSCS with no reverse causality from DLTGEXPSCS to DLGDP (no feedback). The hypothesis that the lag values of DLGDP to DLTGEXPSCS are statistically significantly different from zero is not rejected for the number of lags included as the *p*-values of the *F*-test indicate.

The finding validates the applicability of Wagner's law in Nigeria but does not support a unidirectional causality from public expenditure to growth and thereby doesn't validate the applicability of Keynesian approach in the country. Based on the result of Granger causality, we conclude that a unidirectional causality exists between the two variables used in this study.

5.8 Conclusion

This study further brings to the fore, the role of expenditure on education, health and other community and social services on economic growth. None of the variables was stationary at zero level. This means they all have unit roots. The six variables became stationary at first difference by ADF and PP application. The contribution to existing literature of this research is that it reveals that expenditure on education, health and other community and social services contributes positively in the short- and long-run period and the relationship is only significant in the short run. The effect of corruption by people entrusted to disburse and manage money meant for these very important sectors has tended to reduce its effectiveness. When money is appropriated for a project in the budget sometimes, it takes 3 years for the project to take off, and most times end up as abandoned projects. The positive multiplier effect of the pronouncement of the budget is normally high, e.g. if government announces that a school or hospital will be cited in an area, automatically the cost of land and building will increase immediately.

The study equally discovered that there is inverse relationship between population growth rate and economic growth in the long run which is line with our a priori expectation. This implies that demand is greater than supply and also unemployment is increasing more than that the growth of the economy. Exchange rate and money supply have a positive relationship with economic growth, and they are also statistically significant at 5 %.

The paper recommends that government should increase the allocation meant the sectors and also ensure that the resources are properly managed and used. Government should increase its funding of antigraft or anticorruption agencies like the Economic and Financial Crime Commission (EFCC) and the Independent Corrupt Practices Commission (ICPC) in order to arrest and penalise those who divert and embezzle public funds.

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