

Does Government Expenditure Stimulate Employment Generation? A Disaggregated Empirical Evidence from the Nigerian Economy

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Abstract

The direction and degree of relationship between government spending and reduction in unemployment has continued to generate series of debate among scholars. To empirically establish this relationship in the context of Nigeria, motivated this study. Secondary data sourced from the CBN Statistical bulletin were used to experiment on the disaggregated impact of government expenditure on administration, economic services, social community services and transfers have on the rate of unemployment in Nigeria. The Error Correction econometric model (ECM), the Johansen cointegration and the Granger causality tests were the central analytical tools used in the study. Our stationary test showed that the variables were non-stationary at levels but all were stationary at first difference. In the short-run, a positive relationship was observed. The short-run coefficient of economic services and unemployment was observed to be negative and the direction of causality was from government expenditure on economic services. Expenditure on social community service observed negative and statistically and observed a weak causal influence on unemployment. This highlights the unique case of underdeveloped nature of Nigerian economy. Interestingly, government expenditure on Administration were found to be positive and statistically significant and the direction of causality was from government expenditure on administrative expenses. However, there was no causal relationship between government expenditure on transfers and unemployment. There is, therefore, the need for policy makers to keep an eye on the trend and effects of changes in expenditure on administration and economic services, given that the result indicates that expenditure on them explains the employment behavior in Nigeria.

Keywords: Government expenditure, disaggregated impact, employment generation

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1. Introduction

There exists some empirical nexus between rising level of unemployment and insecurity and other social vices, especially in developing countries such as Nigeria's, where unemployment problem has remained one of major economic undesirables that have bedeviled the country. In a nutshell, the unemployment problem and the ancillary social vices associated with it poses existential threat to the foundation of Nigeria as a nation. Therefore, successive governments in Nigeria had elected to adopt various policies to create jobs and reduce unemployment. While primarily such policies are aimed at creating jobs, it is also an instrument to boost economic growth and development, as well as stabilizing the polity. One of such policy is fiscal policy vis-à-vis government spending. By definition, government spending represents the annual expenditure by federal government to achieve macro-economic objectives which amongst others include: employment generation, increase in output, stability in general price level and balance of payments equilibrium (Obayori, 2016).

The direction and degree of relationship between government spending and reduction in unemployment has continued to generate series of debate among scholars. It is obviously presumed that Government performs two basic functions- protection (security) and provisions of certain public goods. The Protective function entails creation of rule of law and enforcement of property rights which helps to minimize risks of criminality, protect life and property, and the nation from external attacks; while defense, roads, education, health, and power, amongst others are public goods provided by government (Abu and Abullahi 2010).

Essentially, the quest to generate desired employment opportunities for abundant human resources which keeps on growing yearly always preoccupies the attention of policy makers in various economies around the world. This is normally reflected in their policy thrusts, with the fundamental intent of evolving enabling environment towards creation of jobs. Put differently, employment is generated when job opportunities are provided by the government through government spending in the provision of social and economic infrastructural amenities in the economy. This implies that the provision of infrastructural facilities through public funds has dual purpose of generating employment opportunities directly while at the same time using the amenities towards encouraging the productive sectors in order to produce and provide employment opportunities for the labour force (Abdullahi (n.d) and Jhingan, 2008). As observed by Jhingan (2008), the scarcity of employment opportunities, which give rise to unemployment problem, is not only the problem of the less developed countries but also advanced. Nevertheless, this macroeconomic problem is more pronounced in poor economies such as Nigeria and other African countries.

Lack of employment opportunities aggravates unemployment situation in which some employable persons, in the labour force, with requisite qualifications, skills and ability are willing and seeking to work but cannot get jobs (Adawo, Essien and Ekpo, 2012).

As noted by Aregbeyen and Akpan (2013) the pattern of government expenditure in Nigeria has been on consistent increase over the years. Relatedly, the National Bureau of Statistics (2014) provides that the decreasing rate of employment in the country is due to factors such as: increased number of school graduates with no matching job opportunities; a freeze on employment in many public and private sector institutions; and mismanagement of capital budget by the government. Thus given the persistent decreasing rate of employment in the country (Kemi and Dayo, 2014), ameliorative measures such as improving fiscal discipline in government finances and implementing appropriate measures to attract foreign direct investment, among others, are considered imperative towards stemming the tide.

Nevertheless, the effect of government spending in enhancing the level of employment in Nigeria is not without discordant result in the empirical literature. In terms of dominant view among scholars, it is suggested that the government can play a very important role in enhancing the level of employment through fiscal policy in the country. This implies that government spending is an important instrument which can enable the government to intervene in achieving full employment in the economy. This is in tandem with postulation in Keynesian theory of employment.

However, over the years, government spending in Nigeria on productive sectors such as agriculture, education, telecommunication, transportation and healthcare has been a mismatch with the level of generated revenue and level of employment in the country. For instance, a collaborative study carried out by the International Food Policy and Research Institute (IFPRI) and the World Bank in 2008, revealed that federal government of Nigeria public spending on agriculture is less than 2% of total federal annual budget expenditure. This is significantly below compared to other developing countries like Kenya (6%), Brazil (18%) and 10% goal set by African Leaders Forum, under the Comprehensive Africa Agricultural Development Programme (Uger, 2013). In spite of this little investment in the sector, agriculture has on the average contributed 32% of the country's GDP from 1996 to 2000 and 42% between 2001 and 2009 (CBN 2010). In response, government spending on the transport sector equally showed a spiral increase in Nigeria. In 1980, it recorded ₦2407.8.1million but reduced to ₦ 1109.8 million in 1990. In the year 2000, it rose to ₦5336.6 million and to ₦ 60019.703 million in 2014.

Moreover, statistics from the ministry of finance and Nigerian dailies shows that despite the increase in the yearly budgetary allocation in Nigeria, only 4% in 2011, 5% in 2012 and 6.04% in 2013 of the Nigerian annual budget was allocated to the health sector against the 15 percent AU recommendation (CBN, 2014). In the same period (2011, 2012 and 2013) only 7.2%, 8.4% and 8.7% of the total budget was allocated to the education sector against the 26 percent UNESCO recommendation. The above state of affair has increase the rate of illiteracy. Most of the workers are unskilled and they make use of outmoded capital, equipment and methods of production. By implication, their marginal productivity is extremely low and this leads to low real income, low savings, low investment and consequently low rate of capital formation.

Given the scenario above, the pertinent questions arises; to what extent has government spending on key sectors of the economy vis-a viz the agricultural sector, education sector, health sector and transport sector affected the rate of employment in Nigeria? It is the answer to this pertinent question that constitutes the thrust of this study.

Despite the rising substantial funds being spent over the years by the government in the economy, the level of employment has been declining. This calls for a critical investigation. Against this background, this study is considered appropriate with the focus of its investigation on the effect of government spending on the level of employment in the country. Theoretically, there is a direct relationship between government spending and rate of employment generation in an economy. Thus, increase in government spending especially capital spending will all things being equal increase the rate of employment and vice versa. Thus, government spending on economic and social infrastructures are implicitly targeted at generating employment in order to achieve economic growth and development. What then is the state of things in the case of Nigeria? Does empirical evidence from Nigeria supports theoretical postulation that public expenditure stimulates employment generation?

The study is a sectoral disaggregation of government expenditure on selected sectors of the economy namely; agriculture, education, health and the transport sectors, and their magnitude impact on employment generation in Nigeria. The study's scope span from 1981 to 2016.

2. Literature Review

2.1 Theoretical Literature

Despite the fact that the impact of government spending on employment in the economy has dominated works of some eminent scholars, this paper is premised on two theories; Wagner's Theories of Government Expenditure and Keynes Theory of Income, Employment, Output and Interest.

2.1.1 Wagner's Theories of Government Expenditure

Adolph Wagner (1835-1917) was a German economist based his law of increasing state activities as historical

fails from Germany. Wagner's theory of government expenditure postulates that, there exists inherent tendencies for the activities of different layers of a government (such as central, state and local government) to increase both intensively and extensively. There is a fund and relationship between the growth of an economy and government activities with the result that the government and sector grows faster than the economy. From the original version of this theory, it is not clear whether Wagner was reforms to an increase in absolute level of public spending, the ratio of government expenditure to GNP or Proportion of public sector in the economy. But Musgrave believes that Wagner was thinking of proportion of public sector in the economy.

2.1.2 Keynesian Theory of Income, Output, Employment and Interest

As postulated by Keynes (1939), public expenditures can contribute positively to economic growth by increasing government consumption through increase in employment, profitability and investment. The theory also holds that government can reverse economic downturns by borrowing money from the private sector and returning the money to private sector through various spending. This theory believes that active government intervention in the market place through government expenditure was the only method for ensuring full employment by ensuring efficiency in resources allocation and regulation of markets.

Keynes posited that in the short run, economic growth through full employment is strongly influenced by total spending in the economy. This theory regards the economy as being inherently unstable and required active government intervention through spending to achieve full employment.

Keynesian theory posits that our ability to understand what determines the level of spending will help us to know what determine the level of employment, production of output and income in the economy. Keynesian theory suggests that public expenditure stimulates the economy, reduces unemployment and make households feel wealthier on the basis of government spending (Ojong and Hycenth, 2013). This theory assumed that: (i) The real wage is equal to the marginal disutility of the existing employment; (ii) There is no such thing as involuntary unemployment in the strict sense; and (iii) Supply creates its own demand in the sense that the aggregate demand price is equal to the aggregate supply price for all levels of output and employment.

There exists strong nexus between this study and the theories reviewed. Such nexus are elucidated thus; (i) empirical evidence reveals that government intervention in every economy around the world is inevitable as demonstrated during the recent recession which results in government stimulus funds to bail out some failed banks, in UK, USA and Nigeria; (ii) government intervention is very indispensable in providing critical social and economic infrastructural facilities (roads, power supply, schools, rail system, communication, hospitals, etc) which are required for economic growth and development; (iii) government expenditure results in investments in public projects and programmes, which enhances development of infrastructural amenities that can invariably improves productive sectors of the economy which provides employment opportunities for the populace; and above all, (iv) improved industrial production as a result of government expenditure on development of infrastructural amenities attracts foreign direct investment, and invariably provides job opportunities for the available labour force.

2.2 Empirical Literature Reviewed

A number of studies have focused on the nexuses between government spending and employment generation as well as reduction in unemployment in both developed and developing countries. Some of these studies shall be review in this section.

Aziz and Leruth (1997) studied the Cyclical Effects of Government Purchases in the USA economy. Their study revealed that quantitative estimates related to the U.S. economy showed that the effects of changing the composition of government spending through government purchases can have efficiency effects as well as affect short run volatility of macroeconomic variables such as output and employment.

The work of Tuck, Schwartz, and Andres (2009) examined the crisis in Infrastructure Investment and the Potential for Employment Generation in Latin America and Caribbean Region. The study made use of content analysis in terms of qualitative methodology. The study discovered that direct and indirect short-term employment generation can arise from infrastructure capital investment projects, which in the case of Latin America and Caribbean Region, was considerable, but all depending on: mix of subsectors in the investment program; technologies deployed; local wages for skilled and unskilled labor; and degrees of leakages to imported inputs. The authors also disclosed that while these numbers do not account for substitution effect, they are based on combined investments that cut across infrastructure sectors, and that rural road maintenance projects may employ hundreds of thousands of annualized direct jobs for every billion dollars spent in Latin America and Caribbean Region. Furthermore, the result also revealed that levels of employment generation per package of the government investments on infrastructure is highly sensitive to local wages, the division among skilled and unskilled workers, the sector under consideration, the technology being deployed in each project investment, the degree of importation of inputs, and labor conditions.

Abu and Abdullahi (2010) used a disaggregated analysis of government expenditure having total capital expenditure on education, government expenditure on transport and communication and government expenditure on health as measure of expenditure. They found that total capital expenditure, total recurrent expenditure and

government expenditure on education have negative effect on economic growth. Amassoma, Nwosa, and Ajisafe (2011) deployed the ECM (Error Correction Model) to investigate the linkage between components of government spending and economic growth in Nigeria whereas expenditure on education, health and transport and communication had insignificant effect on economic growth. Adewara and Oloni (2012) examined the relationship between the composition of public expenditure and economic growth in Nigeria between 1960 and 2008 using the Vector Autoregressive Models (VAR). Their findings shows that expenditure on education has failed to improve economic growth due to the high rate of rent seeking in the country as well as the growing rate of unemployment. They also found that expenditure on health and agriculture contributed positively to growth.

Adofu, Abula and Agama (2012) investigated the effects of government budgetary allocation to agricultural output and employment in agricultural sector in Nigeria. The study employed the Ordinary Least Square (OLS) regression technique. The results revealed that budgetary allocation to agricultural sector has significant effect on agricultural production and employment in agricultural sector in Nigeria and that the relationship between them is strong, positive and significant. Shadare and Tunde (2012) investigated factors that contributed to graduate unemployment and how the actions of the industrial relations actors contribute to graduate unemployment in Nigeria. The study made use of survey method based on structured questionnaire coupled with regression technique. The result revealed that factors that contributed to graduate unemployment included: existence of artificial barriers to geographical mobility of labour; cultural employment practices; localization and truncating of potentials along tribal lines; failure of the Nigerian government to appraise the employment implications of international trade policies; and ineffective monetary and fiscal policies. Akinyemi, Ofem and Ikuenomore (2012) examined the mismatch between graduate turnout skills and graduate employment in Nigeria. The study was based on survey methodology. The findings of the study revealed that graduate turnout outpaced the graduate employment rate over the years in Nigeria. The study also revealed that the graduate unemployment rate increased from 25.6 percent in the year 2003 to 40.3 percent as at March, 2009, which was largely attributed to the mismatch between graduate employee skills and those skills required for performance in the modern workplace. The study also found that inadequate technical knowledge, deficient English proficiency and lack of critical thinking on the part of graduate employees coupled with high technological drive of most organizations in response to tougher competition in the competitive markets are the factors responsible for graduate unemployment in Nigeria.

Nwosa (2014) examined the impact of government expenditure on unemployment and poverty rates in Nigeria for the period 1981 to 2011. The study made use of ex post facto research methodology based on an Ordinary Least square (OLS) estimation technique. The study discovered that public budget had a negative and insignificant effect on unemployment rate at five percent, which suggests that an increase government spending escalates the unemployment rate in Nigeria. The result of the study also revealed that the increase in unemployment rate resulting from an increase government spending reflected the outcome of continuous increase in the establishment of higher institutions. Such institutions continuously produced graduates on yearly basis, without a corresponding provision of employment opportunities to absorb the graduates. Okafor and Kenneth (2016) examined Public Spending for Growth – Induced Employment in Nigeria. The study used CBN bulletin data from 1970-2014 and used factor analysis. The result revealed that; Public spending contributed significantly to economic growth in Nigeria but did not significantly contributed to job creation in Nigeria. Also, deficit financing of recurrent expenditure was a most important single factor inhibiting public spending from inducing economic growth for employment generation.

2.3 Evaluation of Reviewed Literature

This area of study has generated sustained debates and controversies amongst scholars, both in the past and present. These controversies have led to the formulation of several theories relating to government spending and employment or unemployment, by reputable economists such as Classical theory, Keynes Economic Theory of Employment, Solow Growth theory and Wagner's Theories of Government Expenditure. However, this study anchored on Wagner's theories of government expenditure and Keynes economic theory of employment. Both theories averred that the active government intervention in the market place through government expenditure was the only method for ensuring full employment by ensuring efficiency in resources allocation and regulation of markets.

Empirically, we have also reviewed that works of many authors in this research area. Notably, the works of Adofu, Abula and Agama (2012); Okafor and Kenneth (2016) as well as Abdullahi (n.d), which all premised on the impact of government spending/expenditure on employment generation or unemployment reduction have been insightful

From these studies, however, most of the empirical works have not looked at the impact of sectoral disaggregation of government spending on growth or unemployment or employment. Curiously also, the new study is extended to 2017, with the aim of capturing the current state of things relating to the question of the efficacy of government spending in stimulating employment generation in Nigeria.

3. Methods of Study

This study is mainly a quantitative research which explores causes and effects relationships between our variables of interest. In essence, the methodology uses one set of subjects or variables with multiple variables to determine the relationship between independent and dependent variables after an event has already taken place, using secondary data obtained from the Central Bank of Nigeria and other reliable data sources.

3.1 Model Specification

The model that will be employed for this study, shall be based on the sectoral decomposition of government spending into road transfers (TRAN), economic services (ECON), administration (ADM) and community social services (COM) and their impact on the rate of unemployment. Thus, $UNEM = f(TRAN, ECON, ADM, COM)$ (3.1).

$$UNEM = f(TRAN, ECON, COM, ADM) \quad (3.2)$$

$$UNEM = \beta_0 + \beta_1 TRAN + \beta_2 ECON + \beta_3 COM + \beta_4 ADM + U \quad (3.3)$$

The model is further transformed to log linear form. The natural log of both sides of equation (3.3) are specified thus:

$$\ln UNEM_t = \beta_0 + \beta_1 \ln TRAN + \beta_2 \ln ECON + \beta_3 \ln COM + \beta_4 \ln ADM + e \quad (3.4)$$

Where;

UNEM = Rate of unemployment Generation

TRAN = Government Expenditure on transfers

ECON = Government Expenditure on Economic Services

COM = Government Expenditure on Social Community Services

ADM = Government Expenditure on Administration

e = Error Term

t = Time Frame

β_0 = Autonomous components of unemployment rate

$\beta_1 - \beta_4$ = slopes of government spending

3.2 Apriori Expectation

On the apriori, it is expected that $\beta_1 - \beta_4 > 0$

3.3. Technique of Data Analysis

The study shall use the Error Correction Model methods to correct the pitfall of the short run model. The augmented dickey fuller test (ADF) shall be employed to test for the stationarity of the time series. Also, the co-integration shall be used to test for the long run relationship among the variables in the model and the granger causality test shall be used to test for the direction of effect amongst the variables.

3.3.1 Augmented Dickey-Fuller Unit Root Test

Unit root test involves testing the order of integration of the different series under studied. Therefore, a variable is considered have a unit root, particular first difference if the ADF critical value is greater than the variable critical value at 1%, 5% and 10%. Thus, the Augmented Dickey-Fuller test relies on accepting the alternative hypothesis of unit root (the series are stationary) in favour of the null hypotheses of non-stationarity. The tests are conducted with and without a deterministic trend (t) for each of the series. The general form of ADF is estimated by the following regression

$$\Delta UNEM_t = \theta_0 + \theta_1 UNEM_{t-1} + \alpha_t + U_t \quad (3.5)$$

Where: UNEM is a time series under consideration, t is a linear time trend, Δ is the first difference operator, θ_0 is a constant, n is the optimum number of lags in the independent variables and U is random error term.

3.3.2 Johansen co integration test

The test of the presence of long run equilibrium relationship among the variables using Johansen Co integration test involves the identification of the rank of the n by n matrix Π in the specification given by.

$$\Delta Y_t = \beta + \sum_{i=1}^{k-1} \Gamma_i \Delta Y_{t-i} + \Pi Y_{t-k} + \varepsilon_t \quad (3.6)$$

Where Y_t is a column vector of the n variables Δ is the difference operator, Γ and Π are the coefficient matrices, k denotes the lag length and β is a constant. In the absence of cointegrating vector, Π is a singular matrix, indicating that the cointegrating vector rank is equal to zero. Johansen co integration test will involve two different likelihood ratio tests: the trace test (λ_{trace}) and maximum eigen value test (λ_{max}) shown in equations below:

$$J_{trace} = -T \sum_{i=r+1}^n \ln(1 - \lambda_i^{\hat{}})$$

$$(3.7)$$

$$J_{max} = -T \ln(1 - \lambda_{r+1}^{\hat{}})$$

$$(3.8)$$

Where r the number of individual series, T is the number of sample observations and λ is the estimated eigen values. The trace test tests the null hypothesis of r cointegrating vectors against the alternative hypothesis of n cointegrating vectors. The maximum eigen value test (λ_{max}), on the other hand, tests the null hypothesis of r

cointegrating vectors against the alternative hypothesis of $r + 1$ cointegrating vectors. If the two series are found to be co-integrated, then error correction model (ECM) is appropriate to investigate causality relationship.

3.3.3 Error Correction Model

Error Correction Model (ECM) helps to establish the dynamic relationship. And as well indicate the speed of adjustment from the short-run equilibrium to the long-run equilibrium state. Thus, the greater the co-efficient of the parameter, the higher the speed of adjustment of the model from the short-run to the long-run. Thus, the ECM can be represented in the equation as follows:

$$UNEM_t = \beta_0 + \sum_{1t} \beta_1 TRANS_{t-1} + \sum_{2t} \beta_2 ECON_{t-1} + \sum_{3t} \beta_3 COM_{t-1} + \sum_{4t} \beta_4 ADM_{t-1} + \pi_1 ECM_{t-1} + U_{1t} \quad (3.9)$$

Where;

UNEM is the dependent Variable, TRANS, ECON, COM, ADM are the explanatory variables, π_1 is the coefficient of ECM and U is the error term

3.3.4. The Granger Causality Test

Granger causality test shows the direction of effect between two variables. Such effect could be bidirectional, unidirectional and independence causality. The general form of granger causality is estimated by considering five variables, UNEM and the explanatory variables in the following regressions:

$$UNEM_t = \sum_{t=1}^n \Psi_1 TRANS_{t-1} + \sum_{t=1}^n \Omega_1 UNEM_{t-1} + \varepsilon_{1t} \quad (3.10a)$$

$$UNEM_t = \sum_{t=1}^n \Psi_1 ECON_{t-1} + \sum_{t=1}^n \Omega_1 UNEM_{t-1} + \varepsilon_{1t} \quad (3.10b)$$

$$UNEM_t = \sum_{t=1}^n \Psi_1 G=COM_{t-1} + \sum_{t=1}^n \Omega_1 UNEM_{t-1} + \varepsilon_{1t} \quad (3.10c)$$

$$UNEM_t = \sum_{t=1}^n \Psi_1 G=ADM_{t-1} + \sum_{t=1}^n \Omega_1 UNEM_{t-1} + \varepsilon_{1t} \quad (3.10d)$$

Where it is assumed that the disturbances ε_{1t} and ε_{2t} are uncorrelated, the two variables case is called bilateral causality.

4. Empirical Result

4.1 Unit Root Tests Results

To test the stationary properties of the data, ADF (Augmented Dickey Fuller) unit root tests are employed. The results for both the level and differenced variables are presented in Table 1 below:

Table 1. Unit root test

Variables	Lag	t-Statistic	Test critical values:			REMARK	Decision
			1%	5%	10%		
UNEM	0	-6.314471	-3.66166	-2.96041	-2.61916	I(1)	stationary
TRAN	8	-3.521424	-3.66166	-2.96041	-2.61916	I(1)	stationary
ECO	0	-6.946885	-3.66166	-2.96041	-2.61916	I(1)	stationary
COM	0	-5.98103	-3.66166	-2.96041	-2.61916	I(1)	stationary
ADM	0	-3.334731	-3.66166	-2.96041	-2.61916	I(1)	stationary

Source: Calculated using Eviews 10

The stationarity test was performed first in levels and then in first difference to establish the presence of unit roots and the order of integration in all variables. The study implemented ADF and PP test with intercept plus trend. The results of the ADF stationarity tests for each variable show that the tests fail to reject the presence of unit root for the data series in levels, indicating that the variables are non-stationary in levels. The first difference results reveal that the variables are stationary at 1% significance level, indicating that the examined time series variables are integrated of order one, I(1). For this study the optimum lag length using Akaike information criterion (AIC) is 4.

4.2 Cointegration Test Result

This study next examined the null hypothesis of no cointegration among unemployment, expenditure on Administration, Economic services, Social community service and Transfer using the Johansen cointegration test. It is clear from the results that we cannot reject cointegration (i.e. long-run relation) among unemployment, expenditure on Administration, Economic services, Social community service and Transfer. From the both Trace and Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level. Since the computed value is less than

the conventional critical values, we reject the null hypothesis of no cointegration in favour of the alternative. This result, therefore, indicates evidence of long-term among the variables in Nigeria. The speed of this pre-shock adjustment will however depend on error correction mechanism.

Table 2: Cointegration test

Test (Trace)					
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	Critical Value	0.05 Prob.**	
None *	0.758297	80.42217	69.81889	0.0056	
At most 1	0.412918	36.40074	47.85613	0.3764	
At most 2	0.303784	19.89044	29.79707	0.4303	
At most 3	0.2256	8.66549	15.49471	0.3972	
At most 4	0.023583	0.739836	3.841466	0.3897	
Test (Maximum Eigenvalue)					
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	Critical Value	0.05 Prob.**	
None *	0.758297	44.02143	33.87687	0.0022	
At most 1	0.412918	16.51029	27.58434	0.6221	
At most 2	0.303784	11.22495	21.13162	0.6249	
At most 3	0.2256	7.925654	14.2646	0.3863	
At most 4	0.023583	0.739836	3.841466	0.3897	
Trace and Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level					
* denotes rejection of the hypothesis at the 0.05 level					
**MacKinnon-Haug-Michelis (1999) p-values					
Normalized cointegrating coefficients (standard error in parentheses)					
UNEM	TRAN	ECO	COM	ADM	
	1	1.511781	-0.612184	-0.956718	0.694348
S.E		(0.1941)	(0.1675)	(0.8800)	(0.4432)
Log likelihood	-670.0087				

4.3. Parsimonious Result of the Error Correction Model

This section presents the results of the ECM. The model of the ECM is of the form of equation 3.9 and the estimates of the short-run and long-run movements, as well as the error correction term, which proxies speed of adjustment, are provided in the Table 3.

Table 3: Parsimonious Result of the Error Correction Mode

Variable	Coefficient	Std. Error	t-Statistic	Prob.	
C	-1.617305	0.686376	-2.3563	0.0381	
D(UNEM(-1))	1.802649	0.429279	4.199244	0.0015	
D(UNEM(-3))	0.736092	0.258799	2.844258	0.016	
D(ECO(-1))	-0.089961	0.025997	-3.46045	0.0053	
D(ECO(-2))	-0.031765	0.016151	-1.96682	0.0749	
D(ECO(-3))	-0.033462	0.016892	-1.98091	0.0732	
D(ECO(-4))	0.0206	0.013712	1.502322	0.1612	
D(COM(-1))	0.011056	0.047015	0.235152	0.8184	
D(COM(-2))	-0.113162	0.056862	-1.9901	0.072	
D(COM(-3))	-0.127064	0.051886	-2.4489	0.0323	
D(ADM(-1))	0.141715	0.043404	3.265018	0.0075	
D(ADM(-2))	0.21439	0.046107	4.64984	0.0007	
D(ADM(-4))	0.10414	0.04202	2.478347	0.0307	
D(TRAN(-1))	-0.044842	0.016868	-2.65844	0.0222	
D(TRAN(-2))	-0.045479	0.015995	-2.84331	0.016	
D(TRAN(-4))	0.080245	0.016692	4.807235	0.0005	
ECT(-1)	-1.665611	0.35376	-4.70831	0.0006	
R-squared	0.898039				
Adjusted R-squared	0.749733				
F-statistic	6.055295				0.002216
DW	2.194897				

Note: Adj R2 means Adjusted R-squared. DW mean Durbin Watson
 Sources: evIEWS10

The short-run coefficient of government expenditure in the above unemployment model is mixed. Unemployment at lags 1 and 3 exert negative and statistically significant at 5 per cent level on present unemployment. This implies that, increase in past Unemployment leads to increase in the present value of Unemployment. The short-run coefficient of economic services is negative and statistically significant at 1 per cent level in lag 1 while other lags were insignificant. A 1 per cent increase in economic activities at lag 1 causes unemployment to decrease by over 0.8 per cent in the short-term. Surprisingly, expenditure on social community service indicated at lag 3 is negative and statistically significant at 5 per cent level while lag 1 and 2 were insignificant. This highlights the unique case of underdeveloped nature of Nigerian economy. Interestingly, government expenditure on Administration were found to be positive and statistically significant in all lag (1,2,4). This implies more expenditure on administration could lead to increase in unemployment. Also, government expenditure on transfers were found to be mixed and statistically significant in all lag (1,2,4). This implies more expenditure on transfer could yield different result on unemployment depends on prevalent economic situation in Nigeria. Finally, Table 3 presents the short-run estimates for all the model. The coefficient of ECM (-1) in each of the model is negative and significant at 1 per cent level. The coefficients suggest that over 100 per cent of the short-run disequilibrium is corrected in the long-run equilibrium in each of the model.

Table 4: diagnostic test

Diagnostic tests	Null hypothesis	F-statistic	Decision
Breusch Godfrey serial correlation LM test	H0: no serial correlation	2.6340(0.2679)	Don't reject H0
Heteroskedasticitytest: Breusch-Pagan-Godfrey	H0: homoskedasticity	0.7844(0.6228)	Don't reject H0
Normality	H0: residuals are normally distributed	0.1667 (0.9186)	Don't reject H0
Ramsey reset test		0.0290(0.8682)	Don't reject H0

Note: SC means Breusch–Godfrey serial correlation LM test.

Het is the ARCH test for heteroscedasticity. RESET means Ramsey RESET test.

*, **, and *** indicate significance at 10, 5 and 1%, respectively, t-statistics in [] P-values in ().

The diagnostic tests results in Table 6 show that there is no evidence of serial correlation, heteroscedasticity and functional form misspecification in the models specified. Figures 1-2 indicate the cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares (CUSUMSQ) stability test results. The CUSUM and CUSUMSQ are within the critical boundaries for the 5 per cent significance level (within the two straight lines). Thus, the CUSUM and CUSUMSQ tests indicate that the coefficients of the ECM model is stable.

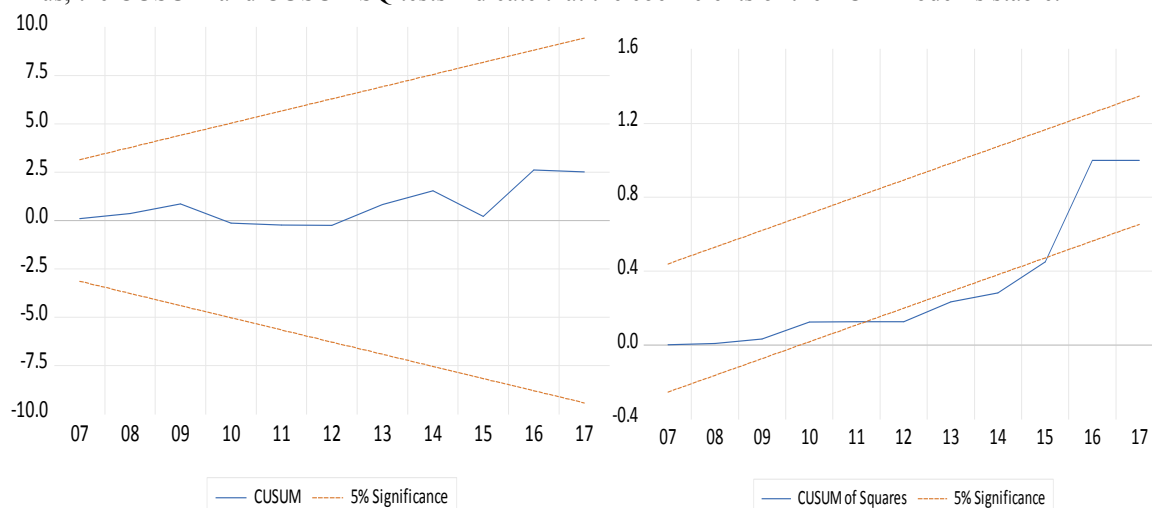


Figure 2 Plot of CUSUM and CUSUMQ for model

4.4 ECM Granger Causality Test Results

Summary results of the Granger Causality test in Table 4 offer some interesting insights. For each of the variables, at least one channel of Granger causality is active

Table 5: Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.	decision
TRAN does not Granger Cause UNEM	31	1.31401	0.286	No causality
UNEM does not Granger Cause TRAN		0.61028	0.5508	No causality
ECO does not Granger Cause UNEM	31	8.22132	0.0017	Existence of Causality
UNEM does not Granger Cause ECO		0.03253	0.968	No causality
COM does not Granger Cause UNEM	31	3.11578	0.0612	No causality
UNEM does not Granger Cause COM		0.56776	0.5737	No causality
ADM does not Granger Cause UNEM	31	8.93781	0.0011	Existence of Causality
UNEM does not Granger Cause ADM		0.41083	0.6673	No causality
ECO does not Granger Cause TRAN	31	4.56872	0.0199	No causality
TRAN does not Granger Cause ECO		0.20034	0.8197	No causality
COM does not Granger Cause TRAN	31	9.8839	0.0006	Existence of Causality
TRAN does not Granger Cause COM		1.34284	0.2786	No causality
ADM does not Granger Cause TRAN	31	9.09675	0.001	Existence of Causality
TRAN does not Granger Cause ADM		0.19778	0.8218	No causality
COM does not Granger Cause ECO	31	3.34698	0.0509	No causality
ECO does not Granger Cause COM		0.56813	0.5735	No causality
ADM does not Granger Cause ECO	31	1.55974	0.2292	No causality
ECO does not Granger Cause ADM		0.36752	0.696	No causality
ADM does not Granger Cause COM	31	4.89551	0.0157	Existence of Causality
COM does not Granger Cause ADM		3.49529	0.0452	No causality

Sources: eviews10

According to the results in table 5, it can be summarised that there exist a unidirectional short-run causal relationship unemployment and the two variables (government capital expenditure on economic services and administration). At 5% level of significance the results show that ECO Granger causes UNEM (prob. = 0.0017). The causality between UNEM and Administrative expenses show that UNEM does not Granger cause ADM (prob. = 0.6673), but ADM Granger causes UNEM (prob. = 0.0011).

5. Conclusion

This study examined the short and long-term relationship between unemployment, expenditure on Administration, Economic services, Social community service and Transfer in Nigeria from 1985 to 2017. In the short-run, a positive relationship is observed. The short-run coefficient of economic services and unemployment is observed to be negative and the direction of causality is from government expenditure on economic services. Expenditure on social community service observed negative and statistically and observed a weak causal influence on unemployment. This highlights the unique case of underdeveloped nature of Nigerian economy. Interestingly, government expenditure on Administration were found to be positive and statistically significant and the direction of causality is from government expenditure on administrative expenses. However, there is no causal relationship between government expenditure on transfers and unemployment. This could be as a result of mixed and statistically significant in all lag (1,2,4).

The findings of this study provide insight into the dynamic relationship between unemployment, expenditure on Administration, Economic services, Social community service and Transfer in Nigeria from 1985 to 2017. Many of the few existing studies in Nigeria are mainly based on multi-variant framework with some considering the relationship between unemployment, expenditure on Administration, Economic services, Social community

service and Transfer, and others recurrent expenditure. The results of this study explain the influence of expenditure on Administration, Economic services, Social community service and Transfer on unemployment in Nigeria. With the results of this study indicating that expenditure on Administration and Economic services significantly explains the employment behaviour in Nigeria, policy makers in Nigeria should keep an eye on the trend and effects of changes in expenditure on Administration, Economic services.

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