

DOES PUBLIC SPENDING AFFECT UNEMPLOYMENT IN AN EMERGING MARKET?

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Abstract

The Nigerian economy in the last two decades up until 2013 has been growing at an average of 6% and yet unemployment was equally growing in the region of 20% within the same period. This paradoxical situation has led to a flurry of studies and postulations aimed at providing explanation and solution to the phenomenon. This study making use of a regression model with annual data from 1980 to 2013, empirically determined the impact of public sector expenditures (CEXP and REXP) together with private sector investment (PINV) on unemployment (UNEMP) in Nigeria. Capital expenditure and private sector investment both in the medium to long-run were found to serve as catalyst towards reduction of unemployment, while recurrent expenditure was not statistically strong enough to do same. The R-2 (0.84) showed that greater proportion of the total variations in UNEMP was brought about by variations in the regressors. Further tests like autocorrelation, heteroscedasticity, specification error, and multicollinearity indicated respectively that there is no presence of autocorrelation hence the model produced a parsimonious result; the variance is constant over time; the link test confirmed by Ramsey reset test suggested there was no specification error; and lastly the variance inflation factor (VIF) of the variables implies that there is no evidence of multicollinearity. The study recommends, inter alia, that the proportion of capital expenditure in Nigerian budget profile should be systematically increased while the recurrent expenditure should be reduced; and there is need to stimulate competition among investors through removal of structural and institutional rigidities and government should design clear policy incentives to private sector investment.

Keywords: Unemployment, Capital Expenditure, Recurrent Expenditure, Private Investment, Domestic Capacity, Conducive Environment, Investment Growth

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1. BACKGROUND TO THE STUDY

The Nigerian economy has been growing in the last two decades at an average of 6% and yet unemployment is worsening at the same time. Available data shows that unemployment has maintained a rising trend over the years from 4.1% in 1981 to 5.3% in 1983; from 7.0% in 1987 to 13.1% in year 2000; from 13.6% in 2001 to 14.9% in 2008; from 19.7% in 2009 to 24.7% in 2013. Surprisingly, Nigeria's GDP has been increasing, as can be observed from Central Bank of Nigeria (CBN) annual publications, with an average growth of 6.4 percent between 2000 and 2014.

This socio-economic anomie has provoked several, policy initiatives, studies and debates aimed at providing explanations and even solutions to this phenomenon. As with macroeconomics, an increase in the rate of unemployment reduces aggregate output and consequently retards growth. On the social side, it provides idle minds and hands for indulging in criminal activities. Meanwhile, reduction in unemployment rate unarguably justifies public expenditure on social and economic

infrastructure like education, health, transport, communication, etc. This is because it is believed that this reduction has the potential of contributing positively to the performance of the economy and promoting higher productivity. Public expenditure as observed by Bhatia (2008) has an active role to play, especially in a developing country, in reducing regional disparities, developing social overheads, creation of infrastructure for economic growth in the form of transport and communication facilities, education and training, growth of capital goods industries, basic and key industries, research and development and many others.

Economic growth, as Mrinal (1999) opined, more often comes from technological progress, which is essentially the ability of an economic organization to utilize its productive resources, especially manpower, more effectively over time. The underlying reason for government intervention in the economy is based on the recognition that the market mechanism, which is supposed to guide private economic agents, has several inadequacies (Ojo and Okunronmu, 1992). Gerson (1998) further stressed that without market failure there is no

reason to assume that additional public sector investments would be more productive than the private investments. Expectedly, one of the major intended purposes of public sector investments is to guarantee an economic climate in which the labour needed to produce goods and services will be fully employed in various sectors of the economy.

Obviously, there seems to be a consensus in the literature on the definition of unemployment as what occurs when people who are willing and able to work at prevailing wage rate could not be able to find any pay-rewarding job. It is worrisome that about 25 million Nigerians out of estimated 95 million persons in the labour force are unemployed (World Development Indicator, 2014). This unemployment figure is somehow so callous given the fact that, with 2015 World Bank estimate, it is like a combined population of New Zealand = 4.5 million; Belgium = 10.6 million; Costa Rica = 4.9 million and Denmark = 5.4 million. And is also equivalent to the total population of Mozambique = 24.9 million. The problems of chronic unemployment are very evident in Nigeria as observed by Okafor (2011), and also corroborated in the works of Adepegba (2011); Ibrahim (2011); Lartey (2011); and Olatunji & Abioye, (2011). Every year thousands of graduates are turned out from various tertiary institutions of learning, for whom there are no jobs. Nigerian streets are littered with hawkers who ordinarily would have been gainfully employed in some enterprise. These growing army of unemployed are further disillusioned as most of them possess little skills and startup capital to be self-employed.

The successive Nigerian governments have reacted differently to this malaise. Some of them created institutions charged with the responsibilities for building capacities of the unemployed to either get a job or create one. Of a particular note in this category is the National Directorate of Employment (NDE) programme. NDE was introduced in 1986 and designed to provide training opportunities as well as support services to graduates and small scale entrepreneurs. Its major targets were to undertake youth employment and vocational skills development programmes; special public works; small scale industries and graduate employment and agricultural development programmes. Unfortunately, factors which include, but not limited to inadequate and late release of funds, impaired the effectiveness of the NDE programmes (Njoku and Ihugba, 2011).

Another more common response is for government to use the annual budget and other instruments of fiscal policies to stem the tide of unemployment and inflation. To shore up employment rate, government usually embarks on expansionary fiscal policies and deficit budget financing. A typical example is the 2016 budget where government is undertaking a deficit budget of about 30% and commit to spending half a trillion Naira monthly handout of N5,000 to each unemployed as a palliative to their plight. Similar fiscal measures have been going on for years with minimal success.

Consequent on the above, this study sets out to assess the extent government expenditures affect unemployment and the implications of this for national development.

2. REVIEW OF RELATED LITERATURE

Theoretical Framework

The role of government in the economy has always been a subject of debate over a long period of time. Some economists argue against large governments while others believe that without government taking a more active and participatory role to steer the economy, countries could move from unstable growth to prolonged recessions and massive rates of unemployment. As a result, there is a growing debate about the effects of government expenditure on unemployment. As a result various scholars have come up with conflicting postulations and perspectives regarding this economic phenomenon.

In an attempt to explain the concept of employment and unemployment, the classical economists based the weight of their argument on the Walrasian general equilibrium model (Sodipo and Ogunrinola, 2011). The two broad features of classical theory of employment are: the assumption of full employment of labour and other productive resources; and the flexibility of prices and wages to bring about the full employment (Islam, 2002) in the event of any deviations from the original intensions.

Full employment of labour: The classical economists see labour and the other resources as always fully employed. Consequently, it is believed that the over-production and general unemployment are presumed to be impossible. However, if there is any unemployment, it is assumed to be temporary or abnormal and believed that it will not persist for long as there are economic factors that inherently work towards returning it to equilibrium (Islam, 2002). Following this assumption the classicists adduced that the major reasons for unemployment are: intervention by the government or private monopoly, wrong calculation by entrepreneurs and inaccurate decisions and artificial resistance (Walterskirchen, 1999). Regardless of the reason(s) for unemployment, there is the general belief that the economy is self-adjusting and would work its way back to full employment equilibrium in a perfectly competitive economy where the relative values of goods and services are determined by the general relations of demand and supply. The pricing system therefore serves as the planning mechanism.

Flexibility of prices and wages: the second assumption of full employment theory is the flexibility of prices and wages. The classical economists believe in the flexibility of prices and wages which automatically brings about full employment. Consequently, if there is general over-production resulting in low demand and unemployment, prices would fall as a result of which demand would increase, prices would rise and productive activity will be stimulated and unemployment would tend to disappear (Islam, 2002). Classical economists believe that unemployment could be cured by cutting down wages which would increase the demand for labour and would stimulate economic activity and employment. Thus, in the classical labour market, shortages or surplus of labour is dealt with by wage movement. The inherent flexible wages would fall below the equilibrium to mop up excess labour supply, and rise above the equilibrium when there are shortages (Sodipo and Ogunrinola, 2011).

Therefore, if the prices and wages are allowed to move freely, unemployment would disappear and full employment level would be restored. The classical economists believe that by so doing, the incidence of involuntary unemployment is removed from the classical labour market.

The Keynesian School of thought on other hand rejected the classical view of wage flexibility and in-built power of the invisible hands to restore employment level and output whenever the otherwise is the case. This stance was strengthened by the inability of the market forces to normalize employment and output level during the period of Great Depressions of the 1930's (Sodipo and Ogunrinola, 2011). Following this flawed position of the classicists by the Keynesian School, the latter therefore proposed that government should, where necessary, intervene in the management of the economy using appropriate policies. Keynesian School's weight of analysis rests on the influence government policy can have in influencing the level of aggregate demand in the economy. Full employment will only be restored through an increase in aggregate demand and not through the classical prescription of falling money wages. Keynes recommended fiscal policy measures in form of increased government expenditure on public works, rather than relying on wage flexibility. This has the potentials of increasing aggregate demand and hence, removing the incidence of involuntary unemployment. Accordingly, taxation should be devised to promote and sustain consumption and investment; the budget should be in deficit-spending to raise the level of effective demand and to overcome depression. Public expenditure therefore, should be planned in such a way as to finance public work programs and provide social security measures; direct taxes should be lowered to encourage savings and investment to further create more employment opportunities; and productive borrowings should be on a large scale to finance productive public expenditure (Somasekar, 2003). To Keynesian School, once full employment level is reached it has to be constantly maintained by adopting appropriate fiscal measures from time to time.

Friedman (1969) criticizes the Keynesian theory of unemployment by bringing in the influence of the money supply on spending which was somewhat absent in Keynes analysis. To him government fiscal policy alone cannot affect aggregate demand if the money supply is so low that it is unable to encourage private spending through high interest rate. The postulation is that problems caused by the use of fiscal policy to control the economy may be alleviated through the use of monetary policy. Accordingly, he is of the opinion that the best thing for the economy is to keep an eye on the money supply and let the market take care of itself. This implies that markets (without government interference through fiscal policy) are more efficient at dealing with unemployment. Friedman argues that Keynesian Theory of unemployment is also short in advocating for a centrally planned economy. If the government is expected to spend funds to reverse depressions, it impliedly means that it knows what is best for the economy as a whole. Keynesian

economic policies therefore have a fundamentally collectivist approach which monetarists, as the followers of Friedman are called, abhors. Centralized planning is fraught with inefficiencies of capital allocation and prone to economic volatility. The Monetarists conclude that Keynes' study of the aggregate relations in an economy is misleading, as recessions are caused by micro-economic factors. They also submit that in reality, temporary governmental interventions usually become permanent and expanded programmes which end up suppressing the private sector and civil society. Therefore, Keynes' approach might work best in a totalitarian state.

Battaglini and Coates (2011) emphasize that despite doubts on the relationship between government expenditure and employment, policy makers tend to be optimistic about the efficacy of fiscal policy in solving unemployment problems. This belief is manifested in the variety of fiscal strategies deployed by countries facing economic downturns in a bid to solve the problem (Monacelli, Perotti and Trigari (2010); Ramey (2012).

Gbosi (2005) posits that by changing its taxation and spending (fiscal policy), government can change the amount of cash in the hands of consumers and by extension, the direction of aggregate demand for goods and services. He believes that tax increases and reduced government spending will lead to a decline in aggregate demand. While on the other hand, tax cuts and increased government spending will stimulate aggregate demand. Further, he explains that one of the major reasons for regulating aggregate demand is to balance production of goods and services with consumption.

In contemporary theory of unemployment, Shimer (1999, 2001) uncovers much more remarkable evidence of a nexus between rates of births in preceding decades and current rate of unemployment. He observes that unemployment has a significant component forecasted by births in earlier decades. His study findings were that countries with high fraction of young workers enjoy lower unemployment than in other countries with low fractions of young workers.

Battaglini and Coates (2011) however observe that willingness to use government expenditure to aggressively fight unemployment is tempered by high levels of resultant indebtedness. They present a theory showing the interaction between fiscal policy and unemployment. The starting point of the theory is a model in which unemployment can be mitigated by tax cuts and public spending increases. Such policies they point out are fiscally costly, but can be financed by issuing debt. Battaglini and Coates (2011) believe that in the presence of unemployment, reducing taxes increases private sector hiring, while increasing public production creates public sector jobs. Thus, tax cuts and increases in public production reduce unemployment. However, both actions are costly for the government. They believe that the way in which the government achieves this is by accumulating bond holdings and long term indebtedness which complicates the economic health of the nation overtime.

Review of Previous Related Studies

The literature is replete with findings from studies seeking to explore the relationship between fiscal policy and unemployment. The results of these studies are as divergent as there are scholars. These variations however, were rooted in the context differences of the country or countries researched, methods used and the data employed. Some empirical studies from developed countries have contributed to the debate on the effect of government expenditure on unemployment. These studies include Fatas and Mihov (1998), Feldmann (2006), Abrams (1999), Bruckner and Pappa (2011), and Genius (2011) among others.

Fatas and Mihov (1998) study used quarterly data and employed Vector Autoregressive (VAR) model to examine the dynamic impact of fiscal policy on employment implied by a large class of general equilibrium models in the USA for the period between 1960 to 1996 and found out that positive innovations in government spending are followed by strong and persistent increases in employment. This result obviously is compatible with Keynesian theory of unemployment which suggests that an expansionary fiscal policy framework stimulates aggregate demand leading to an increase in employment. Relatedly, Fedderke, Perkins, and Luiz, (2006) employed the Vector Error Correction Model (VECM) using time series data for the period 1976 to 2002 to examine the impact of public sector spending in infrastructure on economic growth in South Africa in the long run. The study reported much stronger evidence that increased government expenditure might lead to output growth and more employment in South Africa; and it also in conformity with the postulations of Fatas and Mihov (1998).

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Feldmann (2006), in another study used data from 19 industrialized countries for the period 1985 to 2002 to assess how the size of government sector impacts unemployment. The study observed that a larger share of public investment than private investment in these countries is particularly detrimental to employment creation. Similarly, the works of Abrams (1999) and Feldmann (2006) presented statistical evidence for a connection between the size of government and the unemployment rate in the U.S.A for the period 1945

to 2002 using the generalized least squares (GLS) estimates. . It found that increases in the U.S. government expenditure as a percentage of GDP since 1949 was responsible for increases in the unemployment rate and consequently contributed to slowing down the growth in the U.S. economy.

Zenou (2008) developed a labour market model in the study of job search and mobility in developing countries in which the formal sector was characterized by search frictions while the informal sector was competitive. Results from this study suggested that reducing unemployment benefit or firms' entry cost in the formal sector induces higher job creation and formal employment. It also revealed that reduction in hiring subsidy (to firms) and unemployment benefits (to the unemployed) over time brought about reduction in the size of the informal sector.

Schclarek (2007) examined the impact of fiscal policy on private consumption and employment using annual panel data over the period 1970 to 2000 for 40 countries from all over the world. It also used VAR model to study the effects of fiscal policy shocks and discovered that government investments and employment shocks have Keynesian effects for both industrialized and developing countries. Steinar and Sparrman (2012) empirically investigated the effect of government purchases on unemployment in 20 OECD countries using annual data over the period 1980-2007 and found that increased government purchases led to lower unemployment; and that the effect is greater in downturns than in booms, and also greater under a fixed exchange rate regime than under a floating regime. On the contrary, Bruckner and Pappa (2010, 2012) in their study on how fiscal expansions affect unemployment used structural VAR to empirically show that actually not only that fiscal policy is not the best instrument to reducing unemployment, but that it can also go against the original scope and intentions. In the work of Genius, *et al.* (2013), the impact of fiscal policy on unemployment in South Africa was examined using annual time series data for the period 1980 to 2010 with VECM to determine the effects of fiscal policy aggregates on unemployment in South Africa. The study revealed that government recurrent expenditure and tax have a positive impact on unemployment while government capital expenditure negatively affects unemployment.

Many studies on Nigeria's employment situation have been devoted to unemployment and its determinants and/or its impacts on economic growth. They include Oladeji (1987), Anyanwu (1997), Umoru (2003), Iyoha (2004), Adebayo and Ogunrinola (2006), Gbosi (2005), Onwioduokit (2006), Sodipe and Ogunrinola (2011), Bakare (2011) and Ihugba and Njoku (2011), among others. However, it seems that not much research attention has been given to the relationship between government expenditure and unemployment in Nigeria.

The work of Sodipe and Ogunrinola (2011) which was subjected to Least Square Estimation corrected for non-stationarity on the basis of the Hodrick-Prescott filter shows that a positive and statistically significant relationship exists between employment level and GDP growth in Nigeria. Nwosa (2014) adopted OLS estimation technique to examine

the impact of government expenditure on unemployment and poverty rates in Nigeria using data for the period 1981 to 2011 and observed that government expenditure has positive and statistically significant impact on unemployment rate while it has a negative and statistically insignificant impact on poverty rate. The study therefore recommended that urgent attention should be accorded to rising unemployment and high poverty rates in order to achieve the objective of being among the 20 largest economies of the world by 2020.

Unarguably, the reviewed studies have shown that unemployment has been a challenging phenomenon. This study therefore seeks to determine the extent government spending can go to alleviating the problems of unemployment.

3. METHODOLOGY

This section specifies the model used and the nature and sources of data collected.

Model Specification

Several models related to the study have been in use in the field of economics; however, the model that is more appropriate for what the study intends to achieve is the model developed by Steinar & Sparrman (2014). The implication is that this study follows the theoretical concept and assumptions suggested by Steinar & Sparrman (2014) in the modeling of the relationship between public expenditure and unemployment, and it is therefore restated thus:

$$\mu_{it} = \beta_0 + \beta_1 \mu_{it-1} + \beta_2 \mu_{it-2} + \beta_3 \mu_{it-3} + \beta_4 \Delta \tau_{it-1} + \beta_5 \Delta \tau_{it-2} + \beta_6 g_{it} + \beta_7 \Delta XM_{it} + \beta_8 XM_{it-1} + \beta_9 \Delta XM_{it-1} + \varepsilon_{it} \quad (1)$$

Where,

μ_{it} = unemployment rate in country i in period t

Δ = the first difference operator

τ_{it-1} = is a vector of institutional labour market variables which includes unemployment benefits, employment protection legislation, measures of coordination and centralization of wage setting

g_{it} = real percentage change in government purchases, multiplied by the ratio of government purchases to trend GDP

XM_{it} = export market indicator, which captures the cyclical state of the economy of the trading partners.

To further suit the theoretical context and the relevance of this study, we modified the model to accommodate private investment (PINV), and also adjusted government expenditure into disaggregated government expenditure to include capital and recurrent expenditures. This variable (PINV) is adopted to further capture other determinants of unemployment (UNEMP).

The functional new unemployment adopted model can be specified as:

$$UNEMP = f(CEXP, REXP, PINV) \quad (2)$$

Where:

UNEMP = Unemployment rate

CEXP = Capital Expenditure

REXP = Recurrent Expenditure

PINV = Private Investment

When estimating, parameters are introduced as a random term “ μ ” to take care of variables not included in the model but affect unemployment; equation (2) is therefore transformed to:

$$UNEMP = \gamma_0 + \gamma_1 CEXP + \gamma_2 REXP + \gamma_3 PINV + \mu \quad (3)$$

Taking natural log “ln” of CEXP, REXP and PINV, and specifying equation (3) in dynamic econometric form, we transform it to:

$$UNEMP = \gamma_0 + \gamma_1 \ln CEXP + \gamma_2 \ln REXP + \gamma_3 \ln PINV + \mu \quad (4)$$

Where ln = natural logarithms

Nature and Sources of Data

This study made use of annual time series data of the choice variables. The data were sourced from publications of Central Bank of Nigeria (CBN) Statistical Bulletin and Annual Report and Statement of Account of various years, National Bureau of Statistics (NBS) and World Bank’s World Development Indicators (WDI), Official Development Assistance (ODA), UNDP websites. Data were collected for Unemployment rate (UNEMP), Capital Expenditure (CEXP), Recurrent Expenditure (REXP) and Private Investment (PINV). We also made a comparative analysis of the various data collected from year to year so as to see the fluctuations and variations.

Data Analysis

Descriptive Statistics

In order to verify the characteristics of our data, a descriptive statistics of the variables was carried out.

Table 1. Summary of the descriptive statistics of the variables

Variables	Mean	Std. dev.
UNEMP	9.712121	7.26497
lnCEXP	4.624928	1.96994
lnREXP	5.116083	2.25255
lnPINV	5.29274	2.27812

Source: Authors’ Computation using Stata Software Package

The table above shows the characteristics of the variables using the mean and standard deviation which we used to assess how the series are distributed. Among all the variables used, unemployment (UNEMP) has the highest mean value while capital expenditure (CEXP) has the least mean value. Also the standard deviation shows that unemployment (UNEMP) is the most volatile variable while capital expenditure (CEXP) is the least volatile variable. This implies that CEXP is more closely distributed around its mean hence shows less variability compared to UNEMP. CEXP which is

shown to have the smallest mean value implies that its observations are more widely spread about the mean compared to UNEMP, REXP, and PINV.

Stationarity and Cointegration Tests

Table 2. Unit Root and Cointegration Tests

Variable	Variable at level form			Variable at difference form			Order of integration
Variable	ADF Stat.	Lag	5 %	ADF Stat.	Lag	5%	I[1]
UNEMP	0.164	2	-2.99	-3.703	2	-2.99	I[1]
lnCEXP	-1.320	2	-2.99	-3.842	1	-2.99	I[1]
lnREXP	-0.957	1	-2.99	-4.671	1	-2.99	I[1]
lnPINV	-0.287	1	-2.98	-3.716	1	-2.99	I[1]
Error	-2.233	0	-1.950	Na	Na	Na	I[0]

Source: Authors' Computation using Stata Software Package

I [1] means integrated of order one, I[0] means integrated of order zero, the null hypothesis(H₀) is that there is unit root. Na= Not applicable.

To determine the stationarity of the variables, the Augmented Dickey-Fuller (ADF) statistic (ADF calculated) for each variable was compared with the critical value of the ADF (tabulated ADF) at 5 per cent level of significance, both in their absolute forms. From the table, all the variables were observed to be integrated of order (1), that is, the variables are I[1]series.

Given that the variables are integrated of order one, there is suspicion that the model could be co-integrated. This study therefore proceeded to examine the presence of co-integration among the variables in order to confirm this. It is shown in the table that the ADF calculated for the residual is greater than the ADF tabulated. This means that the null hypothesis for unit root is rejected for the residual. Therefore, there are long-run relationships among the variables in the model, which indicates that linear combinations of the variables in the model were found to be stationary and co-integrated.

Table 3. Estimated Long-run Regression Results
Dependent Variable (UNEMP)

Variable	Coef.	Std. Error	t-value	Probability value
lnCEXP	-0.479	0.0899	-5.33	0.000**
lnREXP	-0.381	1.4234	-0.27	0.791
lnPINV	-0.698	0.1407	-4.96	0.000**
Cons	-3.109	1.162	-2.68	0.012*

Source: Author's Computation using Stata Software Package

* denotes significant at 5% level; ** denotes significant at 1% level; R²= 0.84, DW= 2.15

The table 3 above shows the long-run impact of government expenditure on unemployment rate. Evidence from the result shows that government capital expenditure, recurrent expenditure and private investment all have negative relationship with unemployment. In other words, an increase in any of them will reduce unemployment. The significance tests on the parameter suggested we reject the null hypothesis that government capital expenditure has no impact on unemployment because the probability value is very small enough and even passed the 1 per cent level test. This means that government capital expenditure has significant impact on unemployment within the period under review. As shown in the table, one percent increase in government capital expenditure

lowers unemployment by about 48 percentage points. The coefficient of recurrent expenditure is not significant because the probability value is greater than 5% level, and hence it is presumed to have zero impact on unemployment in the long-run. Private investment however has a significant impact on unemployment and hence too exerts significant influence on unemployment because the probability value is very small enough and even passed the 1 per cent level test. Also one percent increase in private investment (PINV) lowers unemployment by about 69 percentage points.

Table 4. Estimated short-run Regression Results
Dependent Variable (UNEMP)

Variables	Coef.	Std. Error	t-value	Probability value
DLncexp	-3.769	1.166	-3.23	0.003**
DLnrex	0.878	1.235	0.71	0.483
DLnpinv	1.451	2.196	0.66	0.514
Error(-1)	-0.241	0.130	-1.85	0.075
Cons	0.729	0.621	1.17	0.251

Source: Authors' Computation using Stata Software Package.

* denotes significant at 5% level; ** denotes significant at 1% level.

From the short-run model as presented on table 4 above, it is shown that government capital expenditure is negatively related to the unemployment rate. Therefore, increase in the government expenditure reduces the unemployment rate in the short-run. Given that the probability value is small enough, in the short-run government capital expenditure is significantly associated with a fall in the unemployment. Both recurrent government expenditure and private investment are positively signed but exert no significant impact on inflation in the short-run.

The coefficient of the first lag of the residual which is known as the adjustment parameter indicated that 24% discrepancy between dependent and independent variables was being adjusted within the same period.

Coefficient of determination (R²)

The adjusted R² is strong at 0.84; hence, the total amount of variations in the regressand is explained by the regressors to the tune of 84%.

The F-test

From the result of F-test, since the probability value (P-value) for the model is less than five percent

(i.e. P-value < 0.05), we therefore conclude that the overall regression is statistically significant at 5% significant level.

Autocorrelation Test

The Durbin-Watson statistics (DW = 2.15) reveals the absence of autocorrelation problem. This validates the assumption of serial independent among the residuals of the regression model.

Heteroscedasticity Test

White's test for Ho: homoscedasticity against Ha: unrestricted heteroskedasticity

chi2(14) = 15.97
Prob > chi2 = 0.3152

Source: Author's Computation using Stata Software Package

The result of white heteroscedasticity test carried out on the residual indicates the absence of heteroscedasticity in the data used, given the probability value of the test. Conclusion drawn from this is the fact that the homoscedasticity assumption has not been violated, meaning that the variance is constant over time.

Specification Test

The specification test was carried out to check whether the model was properly specified. The predictor of interest is "hatsq", which is the square of the hat matrix diagonal. Given that for the model, the probability of hatsq is not less than the 0.05 significance level, we do not reject the null hypothesis being that the model is correctly specified

The Ramsey reset test confirmed the result from the link test. The Ramsey test used the probability of the F-statistic and for the model, it was found that the probability of the F-statistic is not small enough to reject null hypothesis at 5% level of significance.

Table 5. Link Test for Specification Error Test

	Predictor of interest(<i>hatsq</i>)	t-value	probability value
Model	0.02923	0.256	0.15

Source: Authors' Computation using Stata Software Package

Table 6. Ramsey Test for Specification Error Test

	F-statistic	probability value
Model	2.36	0.11

Source: Authors' Computation using Stata Software Package

Multicollinearity Test

Table 7. Test for Multicollinearity

Variable	VIF
lnCEXP	9.601
lnREXP	5.371
lnPINV	5.622

Source: Authors' Computation using Stata Software Package

VIF = Variance Inflation Factor

The variance inflation factor (VIF) represents the proportion of variance in one predictor explained by all the other predictors in the model. Thus, VIF measures the impact of collinearity among the variables in a regression model. As a rule of thumb, VIF of a variable in excess of 10 shows high collinearity but VIF below 10 shows that collinearity is moderate. Based on the results above, there is no evidence of multicollinearity since the VIF for each of the parameters is less than 10.

4. CONCLUSIONS

This study principally examined the impact of government expenditure (disaggregated into capital and recurrent expenditures) and private investment on unemployment rates in Nigeria and its implication for national development. The scope of the data used covered the period from 1980 to 2013. It found that capital expenditure both in the short-run and long-run serves as catalyst towards reduction of the unemployment malaise, while recurrent expenditure is not statistically strong enough to do same. This supports the findings of Fedderke, Perkins, and Luiz, (2006) that public sector finances on infrastructure lead to output growth and more employment and creation of new jobs

Informed by the literature extensively reviewed, an increase in the rate of unemployment will consistently reduce aggregate output and consequently retards growth. The short-run results showed that recurrent expenditure and unemployment relate positively; this means that Nigeria is more consumption prone such that any increase in recurrent expenditure will raise unemployment rate and tends towards dampening economic bliss.

Government in Nigeria, like in many developing economies, in attempts to reduce unemployment becomes the largest employer of labour. This results in steady increases in the recurrent nature of its expenditures in the form of payment of wage/salaries and other entitlements. The consequence is excess labour force in the public service; and the marginal output of this excess contributes nothing to the economy. The private sector, if viable, could absorb the excess labour in the economy and in the process reduce the economic burden associated with recurrent expenditures. Incidentally, the viability of the private sector depends to large extent on the provisions of capital (infrastructural) investment by the public sector.

The impact of private investment on unemployment in Nigeria is statistically significant and the effects are conducive to employment generation given their inverse relationship offering the possibilities of filling the output-gap.

5. RECOMMENDATIONS

Based on the study findings enunciated above, the study makes the following recommendations: First, there is need for both executive arm of government which designs the budget and National Assembly that appropriates the budget, to work in concert to systematically reduce the recurrent expenditure so

as to free more resources for capital spending that is found to help generate employment.

Second, the current All Progressive Congress (APC) led Nigerian government needs to re-think the 2015 campaign promise of the payment of ₦5, 000 to unemployed persons given the fact that it is such recurrent expenditure that this study reveals as having negative consequences on employment generation; and is likely to have detrimental effects on the growth of the real sector and private investment.

Third, there is need for aggressive pursuit of the policy of diversification of the nation's resource base from oil which will in turn create job opportunities for the teeming population. Accordingly, government should carefully remove price controls and structural rigidities so as to encourage competition and by extension, private sector investment. Sustainable subsidies towards production should also be adopted as the consequences are most likely going to encourage private sector investment, hence, substantial reduction of unemployment.

Finally, government should design incentive packages, as suggested by Onodugo, Kalu & Anowor, (2013), to encourage private sector investment key employment generation sectors such as agriculture, transportation, energy production, telecommunication, mining, service and manufacturing.

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