



## Impact of Public Expenditure on Unemployment Reduction in Nigeria

Enemuo-Uzoezie Chuka Chinekwu <sup>1</sup>, Okoye Nwamaka J. F <sup>2</sup>

<sup>1</sup>Department of Business Administration, Nnamdi Azikiwe University, Awka, Nigeria

<sup>2</sup>Department of Entrepreneurship Studies, Nnamdi Azikiwe University, Awka, Nigeria

**Abstract:** This study was informed by the persistent rise in unemployment rate in Nigeria despite government increased spending over the years. This work empirically investigates the effect of public expenditure on unemployment reduction in Nigeria. In executing the study, the OLS techniques was applied after determining stationarity of the study variables using the ADF Statistic, as well as the co-integration of variables using the Johansen Approach. , the study discovered that the variables are stationary and have a long term relationship among the variables in the model. From the result of the OLS, it is observed that corruption has a positive impact while government capital and recurrent expenditure have a negative impact on unemployment reduction in Nigeria. This means that if corruption continually increases, it will also continue to increase unemployment in Nigeria, while increase in government capital and recurrent expenditure will bring about a decline in unemployment rate in Nigeria. From the regression analysis, it is observed that all the variables conform to the a priori expectation of the study. The F-test conducted in the study shows that the model has a goodness of fit and is statistically different from zero. In other words, there is a significant impact between the dependent and independent variables in the model. Finally, both R2 and adjusted R2 show that the explanatory power of the variables is moderately high and/or strong in explaining the international trade in Nigeria. Consequently, the study recommends that: The government should direct capital investment on education, electricity generation, economic services, and health. This will improve the productivity of the nation's workforce and consequently reduce poverty. The government should also channel recurrent expenditure on agriculture, construction, transportation and communication. This will help improve food security, reduce cost of building, and enhance transportation and communication through regulations by government agencies thus reducing poverty. Stringent legislations should be put in place to fight corrupt activities. This will help keep the public sector honest, transparent and accountable.

**Key words:** Public Expenditure, Government Capital Expenditure, Unemployment Reduction, Government Recurrent Expenditure, Corruption Perception Index.

### 1. INTRODUCTION

The biggest threat to socio-economic stability in many countries in Sub-Saharan African is unemployment. Unemployment relates to a situation whereby one who is capable and willing to be engaged for a job is unable to secure one and so is termed jobless. It depicts a state of hopelessness, one in which jobless citizens cannot afford quality health care, good education, live in squalors and lack access to the basic amenities of life. Unemployment is adverse to economic growth and breeds a lot of dependents leading to unsustainable incomes and general poverty. On the social angle, it can lead to increase in social vices such as criminality, rape, cultism, kidnapping, etc. Nigeria's unemployment rate jumped 23.4% to move from between 9.9% in 2015 to 33.3%, in 2022, amounting to about 23.2 million people living without jobs in the country. This is against global

unemployment rate of 12.6% according to ILO (2012). This alone has been suggested as fuelling the insecurity in Nigeria (Onifade et al, 2020; Segun & Adelowokan, 2015; Saidu, & Ibrahim, 2019)

Public expenditures by government play vital roles in the maintenance and provision of basic infrastructure, public goods and services necessary to create employment as well as the upliftment of the general welfare of citizens. Extant literature posits that visible reduction in unemployment rate justifies public expenditure to achieve macroeconomic objectives such as quality education, well equipped and functional health care systems, quality transport system, good security architecture, poverty reduction etc (Oseni, & Oyelade, 2023; Doreo, 2013; Okafor, Ogbonna, & Okeke, 2017) It is also stated that reduction in unemployment can stimulate the economy and lead to higher productivity. Thus, public expenditure is key to the development of developing nations to reduce regional disparities, provide key industries to drive manufacturing and grow the economy.

In Nigeria, public spending has targeted the provision and maintenance of basic amenities while recently, government expenditures to bridge infrastructural gaps have increased substantially. The national budget that spells out government incomes and expenditures for a period under review is often structured to take care of capital expenditures/projects such as road construction, provision of quality education, good and affordable health care system, power, telecommunications etc. while recurrent expenditures cover mainly salaries, emoluments etc (Olubukola, 2013). Following economic downturns in recent times, occasioned especially by the COVID 19 pandemic, public expenditures in Nigeria have further increased with several interventions and bail-outs by both state and the federal governments. In spite of government efforts, the impact of government increased spending is yet to be felt on the national scale as unemployment rate continues to soar. This rather disturbing trend throws up questions on the actual impact of these public expenditures on unemployment reduction, thus warranting an empirical study (Abu, M. & Adbullah, 2015; Aluthge1, Jibir & Abdu, 2021)

### ***Statement of the Problem***

This study was informed by the persistent rise in unemployment rate in Nigeria despite government increased spending over the years. Public expenditure by government has continued to increase mainly to meet up with infrastructural deficits on roads, power, health and education as well as in securing the country. The aggregate public expenditure by government in the last 30 years on capital and recurrent expenditures have risen. It has however been argued in the literature that government expenditures target social goods to the detriment of the real sector that is capable of generating employment (Bleaney, 2015). The utter neglect of the agriculture and manufacturing sectors for petro dollars, has further worsened the unemployment situation in the country (Falade & Oladiran, 2015). Although the provision of social infrastructure is necessary for economic growth, there is the need to invest in the productive sector which will create the jobs while also utilizing the social infrastructure. With the alarming high rate of unemployment in the land, it is rather worrisome that rising government spending has neither translated to realistic economy growth nor impacted on unemployment by creating jobs and invariably reducing poverty. Moreover, apart from unemployment, other indicators of economic growth such as consumer price index which measures inflation rate and pricing power and the gross domestic product GDP reveal that Nigeria has not fared well in global economic ratings in the last couple of years. This study therefore investigates impact of public expenditure on unemployment reduction in Nigeria

### ***Objectives of the Study***

The main objective of this study is to empirically investigate the effect of public expenditure on unemployment reduction in Nigeria. The specific objectives are to:

1. Examine the effect of Government capital expenditure on unemployment reduction in Nigeria.
2. Determine the effect of Government recurrent expenditure on unemployment reduction in Nigeria.
3. Ascertain the effect of corruption perception index on unemployment reduction in Nigeria

### Research Hypotheses

This study will empirically test the following hypotheses;

**H<sub>0</sub>**: Government capital expenditure has no significant effect on unemployment reduction in Nigeria.

**H<sub>a</sub>**: Government capital expenditure has significant effect on unemployment reduction in Nigeria

**H<sub>0</sub>**: Government recurrent expenditure has no significant effect on unemployment reduction in Nigeria.

**H<sub>a</sub>**: Government recurrent expenditure has significant effect on unemployment reduction in Nigeria

**H<sub>0</sub>**: Corruption perception index has no significant effect on unemployment reduction in Nigeria

**H<sub>a</sub>**: Corruption perception index has significant effect on unemployment reduction in Nigeria

## 2. METHODOLOGY

### Empirical Model Specification

This study investigates the impact of public expenditure on unemployment reduction in Nigeria by modeling government capital expenditure, government recurrent expenditure and corruption as the explanatory variables while unemployment reduction as the dependent variable. Thus, the model for this study is stated as follows:

*The structural form of the model is:*

$$\text{UNE} = (\text{GCX}, \text{GRX}, \text{COR}) \dots \dots \dots \dots \dots \dots (1)$$

*The mathematical form of the model is:*

$$\text{UNE} = \beta_0 + \beta_1\text{GCX} + \beta_2\text{GRX} + \beta_3\text{COR} \dots \dots \dots (2)$$

*The econometric form of the model is:*

$$\text{UNE} = \beta_0 + \beta_1\text{GCX} + \beta_2\text{GRX} + \beta_3\text{COR} + \mu_i \dots \dots \dots (3)$$

Where; UNE = Unemployment reduction proxied by unemployment rate

GCX = Government capital expenditure

GRX = Government recurrent expenditure

COR = Corruption proxied by Corruption perception index

$\beta_0$  = Constant term

$\beta_1 - \beta_3$  = Coefficient of parameters

$\mu_i$  = Stochastic error term

### Test of Research Hypotheses and Decision Rule

This study will test the research hypothesis using t-test. The t-statistics test tells us if there is an existence of any significance relationship between the dependent variable and the explanatory variables. The t-test will be conducted at 0.05 or 5% level of significance.

Decision Rule: Reject H<sub>0</sub> if  $t_{cal} > t_{\alpha/2}$ , (n-k). Otherwise, we accept.

### Data Source

All data used in this research are secondary time series data which are sourced from the Central Bank of Nigeria (CBN) annual statistical bulletin and National Bureau of Statistics (NBS) annual publications and reports.

## 3. ANALYSIS OF DATA AND DISCUSSION OF RESULTS

### Summary of Stationary Unit Root Test

Establishing stationarity is essential because if there is no stationarity, the processing of the data may produce biased result. The consequences are unreliable interpretation and conclusions. We test for stationarity using Augmented Dickey-Fuller (ADF) tests on the data. The ADF tests are done on level series, first and second order differenced series. The decision rule is to reject stationarity if

ADF statistics is less than 5% critical value, otherwise, accept stationarity when ADF statistics is greater than 5% criteria value. The result of regression is presented in table 1 below.

**Table 1: Summary of ADF Test Results**

Variables	ADF Statistics	Lagged Difference	1% Critical Value	5% Critical Value	10% Critical Value	Order of Integration
UNE	-7.332721	1	-3.752946	-2.998064	-2.638752	I(1)
GCX	-4.184963	1	-3.752946	-2.998064	-2.638752	I(1)
GRX	-4.789431	1	-3.752946	-2.998064	-2.638752	I(1)
COR	-5.300609	1	-3.752946	-2.998064	-2.638752	I(1)

Source: Researchers computation

Evidence from unit root table above shows that none of the variables are stationary at level difference, that is,  $I(0)$ . All the variables are stationary at their first difference, that is  $I(1)$ . Since the ADF absolute value of each of these variables is greater than the 5% critical value, they are all stationary at their different integrated differences. They are also significant at 1% and 10% respectively. Since one of the variables is integrated at level form and some at first difference, we go further to carry out the co-integration test. The essence is to show that although all the variables are stationary, whether the variables have a long term relationship or equilibrium among them. That is, the variables are co-integrated and will not produce a spurious regression.

**Summary of Cointegration Test**

Co-integration means that there is a relationship among the variables. Co-integration test is done on the residual of the model. Since the unit root test shows that none of the variable is stationary at level  $I(0)$  rather all the variables are at first difference  $I(1)$ , the study therefore test for co-integration among these variables. The result is presented in tables 2 below for Trace and Maximum Eigenvalue cointegration rank test respectively.

**Table 2: Summary of Johansen Cointegration Test**

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.709793	57.26391	47.85613	0.0051
At most 1 *	0.568725	32.80923	29.79707	0.0110
At most 2 *	0.331098	19.46602	15.49471	0.0141
At most 3	0.009402	0.217278	3.841466	0.6411

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level  
\* denotes rejection of the hypothesis at the 0.05 level  
\*\*MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.709793	28.45468	27.58434	0.0386
At most 1 *	0.568725	23.34322	21.13162	0.0173
At most 2 *	0.331098	17.24872	14.26460	0.0112
At most 3	0.009402	0.217278	3.841466	0.6411

Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level  
\* denotes rejection of the hypothesis at the 0.05 level  
\*\*MacKinnon-Haug-Michelis (1999) p-values

Source: Researchers computation

Table 2 indicates that trace have three cointegrating variables in the model while Maximum Eigenvalue indicated also that there is three cointegrating variables. Both the trace statistics and Eigen value statistics reveal that there is a long run relationship between the variables. This will

prevent the generation of spurious regression results. Hence, the implication of this result is that there is a long run relationship between unemployment reduction and other variables used in the model.

**Presentation of Regression Results**

Having verified the existence of long-run relationships among the variables in our model, the study therefore, subjects the model to ordinary least square (OLS) to generate the coefficients of the parameters of our regression model. The data for the study is presented in table 3 below.

**Table 3: Summary of Regression Results**

Dependent Variable: UNE  
Method: Least Squares  
Sample: 1999 2022  
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.623665	4.362860	6.601364	0.0000
GCX	-2.014792	1.106458	-4.290478	0.0033
GRX	-3.511236	3.265434	-3.086585	0.0095
COR	2.599778	3.169431	3.820267	0.0054
R-squared	0.676459	F-statistic		24.63561
Adjusted R-squared	0.630239	Prob(F-statistic)		0.000000
S.E. of regression	5.884908	Durbin-Watson stat		1.842446

Source: Researchers computation

**Evaluation of Results**

To discuss the regression results as presented in Table 3, the study employ economic a priori criteria, statistical criteria and econometric criteria.

**a. Evaluation based on Economic a Priori Criteria**

This subsection is concerned with evaluating the regression results based on a priori (i.e., theoretical) expectations. The sign and magnitude of each variable coefficient is evaluated against theoretical expectations.

From Table 3, it is observed that the regression line have a positive intercept as presented by the constant (c) = 2.623665. This means that if all the variables are held constant or fixed (zero), the unemployment reduction will be valued at 2.6%. Thus, the a-priori expectation is that the intercept could be positive or negative, so it conforms to the theoretical expectation.

It is observed in Table 3 that corruption has a positive impact while government capital and recurrent expenditure have a negative impact on unemployment reduction in Nigeria. This means that if corruption continually increasing, it will also continue to increase unemployment in Nigeria, while increase in government capital and recurrent expenditure will bring about a decline in unemployment rate in Nigeria.

On the other hand, it is observed that all the variables conform to the a priori expectation of the study. Thus, table 4 summarises the a priori test of this study for the model.

**Table 4: Summary of Economic A Priori Test for Model**

Parameters	Variables		Expected Relationships	Observed Relationships	Conclusion
	Regressand	Regressor			
$\beta_0$	UNE	Intercept	+/-	+	Conform
$\beta_1$	UNE	GCX	-	-	Conform
$\beta_2$	UNE	GRX	-	-	Conform
$\beta_3$	UNE	COR	+	+	Conform

Source: Researchers compilation

## b. Evaluation Based On Statistical Criteria

This subsection applies the  $R^2$ , adjusted  $R^2$ , the S.E and the f-test to determine the statistical reliability of the estimated parameters. These tests are performed as follows:

From our regression result, the coefficient of determination ( $R^2$ ) is given as 0.676459, which shows that the explanatory power of the variables is high and/or strong. This implies that 68% of the variations in the reduction of unemployment is being accounted for or explained by the variations in government capital and recurrent expenditure and corruption in Nigeria. While other variables not captured in the model explain just 32% of the variation in unemployment reduction in Nigeria.

The adjusted  $R^2$  supports the claim of the  $R^2$  with a value of 0.630239 indicating that 63% of the total variation in the dependent variable (unemployment reduction is explained by the independent variables (the regressors)). Thus, this supports the statement that the explanatory power of the variables is high and strong.

The standard errors as presented in Table 3 show that all the explanatory variables were all low. The low values of the standard errors in the result show that some level of confidence can be placed on the estimates.

### *The F-test Statistic*

The F-test statistic is applied to check the overall significance of the model. The F-statistic is instrumental in verifying the overall significance of an estimated model. The hypothesis tested is:

$H_0$ : The model has no goodness of fit

$H_1$ : The model has a goodness of fit

Decision rule: Reject  $H_0$  if  $F_{cal} > F_{\alpha} (k-1, n-k)$  at  $\alpha = 5\%$ , accept if otherwise.

Where;  $V_1 / V_2$  Degree of freedom (d.f)

$V_1 = n-k, V_2 = k-1$ :

Where; n (number of observation); k (number of parameters)

Where  $k-1 = 4-1= 3$

Thus,  $n-k = 25-4 = 21$

Therefore,  $F_{0.05(3,21)} = 2.76$  (From the F table) ... F-table

F-statistic = 24.63561 (From regression result) ... F-calculated

Since the F-calculated  $>$  F-table, we reject  $H_0$  and accept  $H_1$  that the model has goodness of fit and is statistically different from zero. In other words, there is significant impact between the dependent and independent variables in the model.

## c. Evaluation Based on Econometric Criteria

In this subsection, the following econometric tests are used to evaluate the result obtained from the study model: autocorrelation, heteroscedasticity and multicollinearity.

### *Test for Autocorrelation*

Using Durbin-Watson (DW) statistics which we obtain from our regression result in table 3, it is observed that DW statistic is 1.842446 or approximately 2. This implies that there is no autocorrelation since  $d^*$  is approximately equal to two. 1.842446 tends towards two more than it tends towards zero. Therefore, the variables in the model are not autocorrelated and that the model is reliable for predications.

### *Test for Heteroscedasticity*

This test is conducted to see whether the error variance of each observation is constant or not. The hypothesis testing is thus:

$H_0$ : There is a homoscedasticity in the residuals

$H_1$ : There is a heteroscedasticity in the residuals

The decision rule is to accept the null hypothesis that there is a homoscedasticity (i.e. no heteroscedasticity) in the residuals if the probability of the calculated F-test statistic (F) is greater than the 0.05 level of significance chosen in the study, the null hypothesis will be accepted.

Hence,  $p(F) = 0.4238$  (see, Appendix 9). This means that the probability F statistic is greater than 0.05 level of significance. Therefore, the study accepted the null hypothesis that the model has no heteroscedasticity in the residuals and therefore, the data is reliable for predication.

### ***Test for Multicollinearity***

This means the existence of an exact linear relationship among the explanatory variable of a regression model. This means the existence of an exact linear relationship among the explanatory variable of a regression model. This will be used to check if collinearity exists among the explanatory variables. The basis for this test is the correlation matrix obtained using the series. The result is presented in table 5 below.

**Table 5: Summary of Multicollinearity Test**

Variables	Correlation Coefficients	Conclusion
GCX and GRX	0.667115	No multicollinearity
GCX and COR	0.652965	No multicollinearity
GRX and COR	0.652973	No multicollinearity

Source: Researchers computation

Decision Rule: From the rule of Thumb, if correlation coefficient is greater than 0.8, we conclude that there is multicollinearity but if the coefficient is less than 0.8 there is no multicollinearity. The study therefore, concludes that the explanatory variables are not perfectly linearly correlated.

### ***Evaluation of Research Hypotheses***

The t-test is used to know the statistical significance of the individual parameters. Two-tailed tests at 5% significance level are conducted. The result is shown on table 4.6 below. Here, the study compare the estimated or calculated t-statistic with the tabulated t-statistic at  $t_{\alpha/2} = t_{0.05} = t_{0.025}$  (two-tailed test).

Degree of freedom (df) =  $n - k = 25 - 4 = 21$

So, we have:

$T_{0.025(19)} = 2.080$  ... .. Tabulated t-statistic

In testing the working hypotheses, which partly satisfies the objectives of this study, the study employs a 0.05 level of significance. In so doing, we are to reject the null hypothesis if the t-value is significant at the chosen level of significance; otherwise, the null hypothesis will be accepted. This is summarized in table 4.6 below.

**Table 6: Summary of t-statistic for Model**

Variable	t-calculated ( $t_{cal}$ )	t-tabulated ( $t_{\alpha/2}$ )	Conclusion
Constant	6.601364	$\pm 2.080$	Statistically Significance
GCX	-4.290478	$\pm 2.080$	Statistically Significance
GRX	-3.086585	$\pm 2.080$	Statistically Significance
COR	3.820267	$\pm 2.080$	Statistically Significance

Source: Researchers computation

The study begins by bringing the working hypothesis to focus in considering the individual hypothesis.

For GCX,  $t_{cal} > t_{\alpha/2}$ , therefore the study reject the null hypothesis and accept the alternative hypothesis. This means that GCX has a significant impact on UNE.

For GRX,  $t_{cal} > t_{\alpha/2}$ , therefore the study reject the null hypothesis and accept the alternative hypothesis. Thus, GRX do have a significant impact on UNE.

For COR,  $t_{cal} > t_{\alpha/2}$ , therefore the study reject the null hypothesis and accept the alternative hypothesis. This means that COR has a significant impact on UNE.

#### 4. CONCLUSION AND RECOMMENDATIONS

The study attempted to explain the impact of government expenditure on unemployment reduction in Nigeria from 1999-2022 using Ordinary least Square (OLS) technique method. All data used are secondary data obtained from the Statistical Bulletin of Central Bank of Nigeria (CBN) and National Bureau of Statistics (NBS) annual publications and World Bank DataBank.

In executing the study, the OLS techniques was applied after determining stationarity of the study variables using the ADF Statistic, as well as the co-integration of variables using the Johansen Approach, the study discovered that the variables are stationary and have a long term relationship among the variables in the model.

From the result of the OLS, it is observed that corruption has a positive impact while government capital and recurrent expenditure have a negative impact on unemployment reduction in Nigeria. This means that if corruption continually increasing, it will also continue to increase unemployment in Nigeria, while increase in government capital and recurrent expenditure will bring about a decline in unemployment rate in Nigeria. From the regression analysis, it is observed that all the variables conform to the a priori expectation of the study. The F-test conducted in the study shows that the model has a goodness of fit and is statistically different from zero. In other words, there is a significant impact between the dependent and independent variables in the model. Finally, both  $R^2$  and adjusted  $R^2$  show that the explanatory power of the variables is moderately high and/or strong in explaining the international trade in Nigeria. Consequently, the study recommends that: The government should direct capital investment on education, electricity generation, economic services, and health. This will improve the productivity of the nation's workforce and consequently reduce poverty. The government should also channel recurrent expenditure on agriculture, construction, transportation and communication. This will help improve food security, reduce cost of building, and enhance transportation and communication through regulations by government agencies thus reducing poverty. Stringent legislations should be put in place to fight corrupt activities. This will help keep the public sector honest, transparent and accountable.

#### REFERENCE

1. Abu, M. and Adbullah, S. (2015). The relationship between government expenditure and unemployment reduction in Nigeria. *Review of Economics and Statistics* 39, 312–320.
2. Aluthge1, C., Jibir, A. & Abdu, M. (2021). Impact of government expenditure on economic growth in Nigeria, 1970-2019. *CBN Journal of Applied Statistics* Vol. 12 No. 1. 139-174
3. Bleaney, S. N. (2015). The impact of government spending on unemployment reduction in Nigeria. *Quarterly Journal of Economics*, 70, 65-74.
4. Doreo, S. A. (2013). The impact of unemployment on Nigerian economy in Nigeria. *Business Journal, Economics and Review*, 3(2), 42-61.
5. Falade, O. E. & Oladiran, O. I. (2015). Effect of government capital expenditure on manufacturing , sector output in Nigeria. *Business and Economic Research*, 5(2), pp. 136-152.
6. International Labour Organization (ILO) (2012). *World of Work Report*. Geneva: International Labour Office.
7. Okafor, C. N., Ogbonna, K. S., & Okeke, C. I. (2017). Effect of government expenditure on human capital development in Nigeria. *International Journal of Banking and Finance Research*, 3(2), pp. 1-14.
8. Olubukola S. A. (2013). Unemployment and Security challenges in Nigeria. *International Journal of Humanities and Social Science*, 3(1), 17-23.



9. Onifade, S. T, Cevik, S, Erdogan, S, Asonu, S. & Bekun, F. V. (2020). An empirical retrospect of the impacts of government expenditures on economic growth: new evidence from the Nigerian economy Vol. 9, no 6
10. Oseni, I. O & Oyelade, A. O.(2023). Effect of capital expenditure on unemployment rate in Nigeria. African Journal of Economic Review, Centre for Economics and Community Vol. 11, Issue.
11. Saidu, I. E., & Ibrahim, A. (2019). Impact of Public Capital Expenditure on Economic Growth in Nigeria. Lapai Journal of Economics, 3(1), 169-177.
12. Segun, O. M., & Adelowokan, O. A. (2015). Measuring the impact of public expenditure on economic growth in Nigeria. Journal of Social Science Studies, 2(2), 46-55.