International Journal of
Innovative Research in Social Sciences and Strategic Management Techniques
p-ISSN: 2465-728X | e-ISSN: 2467-8155
IJIRSSSMT
April, 2025
Vol. 11, No. 1

Government Expenditure, Inflation and Unemployment in Nigeria

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Article DOI:
10.48028/iiprds/ijirsssmt.v11.i1.15

Keywords:
Government Expenditure, Inflation and Unemployment

Abstract

This work examines the dynamic nexus among government expenditure, inflation, and economic growth in Nigeria employing Auto-regressive Distributed Lag (ARDL) Model and Error Correction Model (ECM). The research examines how government spending pattern impact on inflation and hence economic growth in Nigeria. Government expenditure (capital and recurrent) was found to have a positive as well as significant impact on inflation rate in line with theoretical expectation. This implies that increase in government expenditure will raise aggregate demand thereby increasing the prices of goods and services. Moreover, recurrent spending is associated with higher inflation rate, whereas capital spending tends to mitigate inflationary pressures. The study recommends a prudent redistribution of government spending towards capital projects and the implementation of fiscal policies targeted at checkmating inflation to foster sustainable economic growth in Nigeria.

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Background to the study

Government expenditure is essentially government cost at any point. It includes expenditure on real goods and services purchased outside suppliers, expenses on creation of jobs in the state in terms of administration, defense and education; expenses on payments transferred to retirees, those without jobs as well as the less privileged, costs on subsidies and credits to firms, and payments of the debt incurred. The trend in government expenditure is expected to bring about improvement in infrastructural development, human capital development, employment generation, price stability and the improvement in the general standard of living of the citizens of a particular country. Government expenditure in any economy is responsible for rapid economic growth and development (Onifade, et al. 2020).

Government capital and recurrent expenditure is expected to spark off positive changes on key macroeconomic variables like Gross Domestic Product, unemployment, inflation, exports, Balance of Payment, among others. Increase in government expenditures in an economy result to improvement in total commodities demanded, employment as well as income via multiplier process (Amadi, et al. 2018; Egbulonu & Amadi, 2016). If there is no related improvement in production of goods and services it will raise prices, a rise in public spending in terms of intervention funds according to economists of the neo classical stand may perhaps leads to soaring level of price increases in a situation of full employment, while reduction in government expenditures mitigate total demand, national income, employment, output and prices. Also, there are situations in which the economic condition is bedeviled steadily with stagflation. It is theoretically expected that inflation stimulate economic activity, and that high unemployment reduce inflation. But contrary, to this, recent experiences suggest that high unemployment and inflation are incompatible only in the extreme long-run if at all. Much literature on government expenditures, inflation and unemployment relationship reveals different and conflicting results. Egbulonu and Amadi (2016), Ozurumba (2012); Arewa and Nwakohma (2013) in their research, discovered that an improvement in capital expenditure improve employment and economic growth whereas recurrent expenditure is hurting it. Nwosu (2014) in his investigation of the relationship among government expenditures, unemployment and poverty rate in Nigeria discovered that government expenditures have positive as well as major influence on rate of unemployment. This research work therefore, is to investigate the influence of government expenditures on the rate of inflation as well as unemployment in Nigeria.

Statement of the Problem

With the continued increase in government expenditures in various sectors of most economies, attention has focused on the impact of government expenditures on inflation and unemployment (Egbulonu and Amadi, 2016; Amadi, et al. 2018; Abrams & Wang, 2006; Ezirim et al, 2008; Ozurumba, 2012; Arewa & Nwakohma, 2013; Nwosa, 2014; Nguyen, 2014)

According to available resources and income, a nation like Nigeria, where high percentage of the citizens are living under relatively low income, deteriorating infrastructure, health, education, whose rates of unemployment rate, inflation rate and illiteracy are in rising pedestal. Despite these problems, the government has kept its expenditure growth trajectory on the increase. Nigeria's budget as of 2019 stood at N8.92 trillion; the budget for 2020 was N10.27 trillion; the budget for 2021 was N13.08 trillion and that of 2023 was N27.5 trillion. The correlation between government expenditure and unemployment rate and inflation rate has sparked a significant amount of scholarly discourse.

In spite of this expanded budget allocation in the country, unemployment and inflation rate are still increasingly unstoppable. In 2010 the unemployment rate was 6.1 percent; it increased astronomically to 20.7, 32.5, 33.0 and 33.5 percent in 2016, 2021, 2022 and 2023 respectively. This unstoppable increase in unemployment and inflation in Nigeria defiling all economic theories to mitigate and stabilized unemployment and inflation despite the huge government spending is the thrust of this study. Also, while other studies had looked at the problem of unemployment and inflation as relating to economic growth together, this study looked at them separately employing the ARDL and other statistical and econometrics techniques. Furthermore, the failure of other studies to provide a definite stand either due to data discrepancy, method of study etc is adequately catered for in this study.

Research Questions

The study sought to solve the following puzzles:

i. What is the impact of capital spending on inflation in Nigeria?
ii. What is the impact of capital spending on unemployment in Nigeria?
iii. What is the effect of recurrent spending on inflation in Nigeria?
iv. What is the effect of recurrent spending on unemployment in Nigeria?
v. Between recurrent and capital expenditures, which one has greater impact on inflation and unemployment in Nigeria economy?

Objectives of the Study

The major goal of this research work is to investigate the influence of government expenditures on the rate of inflation as well as unemployment in Nigeria. Whereas the specific objectives of this research work are to:

i. Investigate the impact of capital spending on inflation in Nigeria.
ii. Examine the effect of capital spending on unemployment in Nigeria.
iii. Investigate the effect of recurrent spending on inflation in Nigeria
iv. Examine the impact of recurrent spending on unemployment in Nigeria.
v. Examine between recurrent and capital expenditures, which one has greater impact on inflation and unemployment in Nigerian economy.

Research hypothesis

The study was guided by the following hypotheses:

H_{01}: Capital spending has no significant impact on inflation in Nigeria.

$H_{02:}$ Capital spending has no significant effect on unemployment in Nigeria.

$H_{03:}$ Recurrent spending has no significant impact on inflation in Nigeria

H_{04} Recurrent spending has no significant effect on unemployment in Nigeria.

$H_{05:}$ Recurrent and capital expenditures, non-has significant greater impact on inflation and unemployment in Nigerian.

Theoretical Review

Keynesian Theory of Employment

The Keynesians are the twentieth century economists whose views about the workings in an economy signify an expansion of the assumptions of John Maynard Keynes (1883-1946). The disciples of Keynes regard the state of the nation as naturally stable and require dynamic intervention by the government to stabilize it. They assign a little significance to monetary policy as well as much significance to the use of government revenue and taxes to influence the level of economic activities (Ekpenyong, 2005). Keynesians economics focuses on the rate of spending in the economy. Spending is what pulls forth the output and thus, support employment and incomes. Keynesians economics emphasizes that if we understand what determines the level of spending (aggregate demand); we will know what determines the employment level as well as production of output and income in the economy (Bowden, 1982).

Keynes rejected the classical view of demand being created by supply and argued that spending (aggregate demand) determines supply, that if total spending fell, business firm will respond by cutting back production. Less spending will thus lead to less output. The message of Keynes will be summarized as follows;

Spending (demand) leads to increase in current production. Business will turn out only number of commodities they believed customers, business men, government as well as aliens will intend to purchase. If these planned aggregates expenditure are not up to full employment in the economy, the potential of output will decline. While total spending is lacking, the full employment level is not well assured by automatic force, less than capacity output will result. Prolong unemployment will persist. This was a compelling argument for the great depression of 1929 to 1933. Keynes furthermore argued with the idea the association involving quantity of money and prices is direct and proportional which was held by the elder quantity theorists. To Keynes, the impact of the variations in the amount money and prices is not direct through the rate of interest and non-proportional, hence, money is not a “veil" rather, it affects real variable in the economy (Jinghan, 2004).

With regard to the role of money in the economy, the transmission mechanism is that, when there is a rise in supply of money, the first impact is to reduce the rate of interest, A lower interest has the potency to increase investment since investment is $. decreasing

function of cost of capital, A rise in investment portfolio raises aggregate demand and brings about a rise in. income, output and employment, Implicit in the above view is the idea that any increases in money supply affect prices only when the level of employment has been reached and not before.

Hence, the Keynesian monetary transmission mechanism is indirect. By monetary transmission mechanism we mean the chain of events emanating from variations in supply of money to other real variables. In the Nigeria context, the flow of FDI from the oil sector exerts similar influences.

The Monetarists Theory of Inflation

Apart from Keynes, current monetarists like Milton Friedman, also described inflation as much demand for commodities. However, there is a key disparity involving the monetarist views of demand -pull inflation as well as the view of the Keynesians. Keynes stressed that inflation is due to forces in the traditional sectors of the economy. In the Keynesian inflation model, excess demand occurs due to independent rise in investment or consumption spending, meaning, a rise in total spending or demand takes place free of any rise in the stock of supply of money.

Contrarily, monetarists explain the emergence of surplus in demand and the resulting inflation due to a rise in the stock of money in the country. Friedman believes that whenever the money stock in an economy is increased, therefore the money supplied will be more than money demanded by the public. Hence, stability level will be distorted. In a bid to reinstate the level of stability the money balances, the money balances will be reduced by the public through a rise in spending on commodities. So, Friedman and his cronies argued that, the surplus supply of real stock of money leads to a rise in total demand for commodities. If the increase in output is not proportional, then the additional supply of money results to surplus demand for commodities. This leads to increases in commodities prices. This disagreement is illustrated below:

M>Kpy AD P.....(1)

M signifies quantity of money where as P is the price level. Hence, M/P stand for real cash balances.

Y signifies national income k is the ratio of income that individuals desire to keep in cash balances. Hence Ky represent cash balances (i.e. demand for money). AD stands for demand for or total expenditures on commodities that are divided into consumption demand (C) and investment (1).

From above it is revealed that a rise in money supply MS, results to surplus provision of actual cash balances. This is express by MS >Kpy. This surplus provision of actual money balances causes an increase in total demand (AD). A rise in total demand (AD) will increase the level of prices (P). Friedman's monetary theory of inflation can be well understood with quantity equation.

p = MV/Y=M/Y.I/k illustrated in percentage from which is seen below taking V or k to be constant,

AP/P- AMsMs - AY/Y.....(2)

(AP/P) is the rate of inflation, (AMs/Ms) is the rate of growth of money supply and (AY/Y) depicts output growth rate. Hence, from equation (2), inflation rate (AP/Y) is based on money supply growth (AMs/M) as well as output growth rate (AY/Y), with speed of circulation (V) or k is being constant. Friedman and his colleagues believed that persistent price increases are caused by much money in circulation which means that variation in speed as well as productivity are little.

It therefore means that a rise in the stock of money lead to disturbances in the stability state, Ms>kPY. Friedman and his colleagues stressed that people would prefer to use the surplus money stock for consumption purposes so that monetary equilibrium can be restored.

Theoretical Framework

This study is based on the Keynesian Theory of Employment and Monetarists Theory of Inflation by Milton Friedman. Keynesians economists believed that spending is what pulls forth the output and thus, support employment and incomes. Keynesians economics emphasizes that if we understand what determines the level of spending (aggregate demand); we will know what determines the employment level as well as production of output and income in the economy.

The Monetarist believes that whenever the money stock in an economy is increased, money supply will be more than money demanded by the public. Hence, stability level will be distorted. In a bid to reinstate the level of stability the money balances will be reduced by the public through a rise in spending on commodities. So, Friedman and his cronies argued that, the surplus supply of real stock of money leads to a rise in total demand for commodities. If the increase in output is not proportional, then the additional supply of money results to surplus demand for commodities. This leads to increases in commodities prices.

Empirical Review

Government Expenditure and Inflation

In this section, we examined the various contributions of different authors on effect of government expenditure on inflation and unemployment in Nigeria and other countries. Firstly, literature which captures the relationship between government expenditure and inflation in Nigeria and other countries are reviewed. These include the following:

Fasewa and Aderinto (2023) examined the effect of government expenditure on inflation in Nigeria while disaggregating expenditure into capital and recurrent. The study also

examined the response of inflation to changes in government expenditure in Nigeria. Secondary data collected from the Central Bank of Nigeria Statistical Bulletin was employed for a period of thirty-eight years (i.e. 1981-2019). The Auto Regressive Distributed Lag technique was employed. For the first model explaining government capital expenditure, short run estimates reveal that in the current period, government capital expenditure has a significantly negative relationship with inflation. For government recurrent expenditure, it was established that government recurrent expenditure has a positive relationship with inflation. The impulse response test used in analyzing the effect of an unanticipated change in government expenditure (capital and recurrent) on inflation shows that the effects of the change in both cases are temporary as they are seen to revert to the mean. The study recommends that the government should maintain a good strategic balance between capital and recurrent expenditure to prevent the economy from being consumption - based.

Method of Data Analysis

To empirically examine the effect of public spending on unemployment and inflation rate in Nigeria, we will adopt Auto-regressive Distributed Lag (ARDL) approach and Error Correction Mechanism (ECM). ARDL Are standard least squares regressions that include lags of both the dependent variable and explanatory variables as regressors.

$Yt = \beta_0 + \beta_1 Y_{t-1} + \beta_2 X_{t-1} ..... \beta n Xn_{t-1} + u$

It is a method of examining cointegrating relationships between variables. ARDL Bounds testing for Co-integration analysis and the estimation of long run and short run dynamics to determine the effect of the independent variables on the dependent variable.

Model specification

Many economists hypothesize the fact that inflation is a function of government expenditures. Therefore, we specify that, inflation rate depends on government expenditure. Thus, we specify that inflation rate is a function of government expenditure.

Model one (1)

The study adopted the model used by Fasewa and Aderinto (2023)

INF= f (GCXP, GRXP, EXR, IR) ……..… (1)

INF= α0 + α1lnGCXP + α2GRXP + α3EXR + α4lnIR +μ…….. (2)

Where INF is inflation rate (annual consumer prices %), GCXP is Government capital expenditure (N Billion). GRXP is Government recurrent expenditure (N Billion), EXR is official exchange Rate (N/US$), IR is interest Rate (annual Interest Rate).

Therefore, the study modified the model as follows

The econometric representation of the first model becomes:
INF = f(TGEX).....(3)

Where INF is inflation rate and TGEX is total government expenditure
In equation (3.3) total government expenditure (TGEX) were disaggregated into various component of capital expenditure and recurrent expenditure. Therefore, the equation was re-estimated as follows:
INF= f (CEX, REX, EXR, INR) ……..… (4)

Econometrically, the model in equation (3.4) can be re-organized as follows:
INF= α0 + α1lnCEX + α2InREX + α3EXR + α4INR +μ…….. (5)

Where
INF = Inflation rate CEX = Capital expenditure, REX = Recurrent expenditure
EXR = Exchange Rate, INR = Interest Rate. , In = Natural Logarithm
μ_t = ...Stochastic error term / time trend

In reference to equation (3.5) the ARDL model is specified as:

$$\Delta(INF)_{t-1}$$
$$= \sigma_0 + a_1(INF)_{t-1} + a_2 Ln(CEX)_{t-1} + a_3 Ln(REX)_{t-1} + a_4(EXR)_{t-1} + a_5(INTR)_{t-1} + \pi_0$$
$$+ \sum_{i=1}^{n} \boldsymbol{\beta_1 \Delta INF_{t-i}} + \sum_{i=1}^{n} \boldsymbol{\beta_2 \Delta lnCEX_{t-i}} + \sum_{i=1}^{n} \boldsymbol{\beta_3 \Delta lnREX_{t-i}} + \sum_{i=1}^{n} \boldsymbol{\beta_4 \Delta EXR_{t-i}} + \sum_{i=1}^{n} \boldsymbol{\beta_5 \Delta INR_{t-i}}$$
$$+ \beta 6 \Delta ECT - 1$$
$$+ \varepsilon t$$

$$\sigma_0, \pi_0 \text{ are constant terms}$$
$$\beta_1 - \beta_5, \varepsilon_1 - \varepsilon_6 \text{are short run dynamics coefficients}$$
$$a_1 - a_5, b_1 - b_6, \text{are long run coefficents of the explanatory variables}$$

The equation shows that inflation is influenced by government expenditure in the form of recurrent and capital spending, interest rate, exchange rate etc. Also, the result of the unit root test suggests the use of ARDL therefore the disaggregation of the equation into various components as above. Same applies for model two below.

Model Two (2)
UEP = f(TGEX) .....(6)

Where UEP is Unemployment rate and TGEX is total government expenditure
In equation (6) total government expenditure (TGEX) were disaggregated into various component of capital expenditure and recurrent expenditure. Therefore, the equation was re-estimated as follows:

UEP = f (CEX, REX, EXR, INR) ……..… (7)

Econometrically, the model in equation (3.4) can be re-organized as follows:

UEP = α0 + α1lnCEX + α2InREX + α3EXR + α4INR +μ…………….. (8)

Where;
UEP = Unemployment rate, CEX = Capital expenditure, REX = Recurrent expenditure
EXR = Exchange Rate, INR = Interest Rate, In = Natural Logarithm
μ_t = ...Stochastic error term / time trend, In reference to equation (5) the ARDL model is specified as:

$$\Delta(UEP)_{t-1} = \sigma_0 + a_1(INF)_{t-1} + a_2Ln(CEX)_{t-1} + a_3Ln(REX)_{t-1} + a_4(EXR)_{t-1} + a_5(INTR)_{t-1} + \pi_0 + \sum_{i=1}^{n}\boldsymbol{\beta_1\Delta UEP_{t-i}} + \sum_{i=1}^{n}\boldsymbol{\beta_2\Delta lnCEX_{t-i}} + \sum_{i=1}^{n}\boldsymbol{\beta_3\Delta lnREX_{t-i}} + \sum_{i=1}^{n}\boldsymbol{\beta_4\Delta EXR_{t-i}} + \sum_{i=1}^{n}\boldsymbol{\beta_5\Delta INR_{t-i}} + \beta6\Delta ECT - 1 + \varepsilon t$$

σ_0, π_0 *are constant terms*

$\beta_1 - \beta_5, \varepsilon_1 - \varepsilon_6$ *are short run dynamics coefficients*

$a_1 - a_5, b_1 - b_6,$ *are long run coefficents of the explanatory variables*

Pre-Estimation Tests

Unit root test

The Augmented Dickey-Fuller [ADF] (1979) unit root tests will be applied to test for the stationarity of the time series data sourced for the examination of government's capital and recurrent expenditure and its implications for inflation and unemployment in Nigeria.

The ADF unit root test includes extra lagged terms of the dependent variable in order to eliminate the problem of autocorrelation. The decision to accept or to reject the null hypothesis of δ = 0 is based on the Dickey –Fuller critical values.

The test will be applied as follows:

$$\Delta Y_t = \delta Y_{t-1} + a_{2t} + \sum_{i=1}^{p}\beta\,\Delta Y_{t-1} + U_t \ldots\ldots (1)$$

Where:
Δ = difference operator, Y_t = Variable, μ_t = Error term

Under the null hypothesis if δ= 1, it becomes a random walk, that is non-stationary process, if δ< 1 this means that the series Y_t is stationary.

Co-integration Test

The ARDL bounds test is used to estimate long run relationship between tax revenue and economic growth in Nigeria.

Post-estimation Test

Autocorrelation: Autocorrelation may be caused by non-stationarity of dependent and explanatory variables, data manipulation (averaging, interpolation and extrapolation)

and incorrect functional form. Breusch-Godfrey LM test is a test for auto correlation and is applicable to levels model processes with unknown cointegrating rank.

Heteroskedasticity

Breusch-Pagan-Godfrey test will use to check for the presence of heteroskedasticity. If the presence of heteroskedasticity is found, logarithms transformation will be performed to remove it so as to ensure that the residuals are homoscedastic

Ramsey Reset Test

The general test for specification errors which may arise from omitted variables, incorrect functional forms and correlation between explanatory variables and error term will be conducted which is the Ramsey's Regression Specification Error Test (reset). The Ramsey's retest tests the null hypothesis that: there is no specification error.

Stability Test

CUSUM test of stability will be use to ascertain whether the series are stable over the historical time period.

Data Presentation

The study utilized a time series data on Unemployment rate (UEP), Inflation rate (INF), Capital expenditure (CEX), Recurrent expenditure (REX), Exchange rate (EXR) and Interest rate (INR) sourced from Central Bank of Nigeria statistically Bulletin and National Bureau of Statistics Various Issues from 1986 to 2023. The data are showed in Appendix 1.

Presentation of Results.

The results of the computer printout are on the appendix whereas the relevant portion of the results were copied and analyzed.

Presentation of results and findings – Inflation Model

Descriptive Statistics

The summary statistics as shown in table 5.1 depict the mean, standard deviation, minimum and maximum values of each of the variables during the period covered.

Table 1: Summary of Descriptive Statistics

	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	Prob
INF	197.8824	104.7400	574.1800	27.7500	171.3506	1.7360	2.0126	5.3671	0.0683
CEX	313293.2	96237.2	2307834.0	3764.540	475834.8	2.3275	9.1485	101.6003	0.0021
REX	2.21E+10	9.96E+09	1.80E+11	38745743	4.05E+10	3.0915	12.0325	109.8313	0.0032
EXR	202.7845	152.0800	487.5600	101.7000	119.3230	1.4522	3.7696	8.2750	0.0016
INR	6.0472	6.1350	18.1800	-5.6300	5.6971	-1.02	2.7983	0.0757	0.9628

Source: Researchers computation using E-views 9.0

This section shows the various results obtained from descriptive and econometrics computations.

Comparing the means and standard deviation for each variable, the results revealed that capital expenditure (CEX and Exchange Rate (EXR) are divergent from their means while inflation (INF), recurrent expenditure (REX) and Interest rate (INR) clustered around their means. In terms of skewness, Interest rate (INR) are negatively skewed, however the strength of the negative skewness is small as it tends toward zero, thus, the series are still safe to be use for econometric modeling. In contrast, Inflation rate, Capital expenditure, recurrent expenditure and Exchange Rate are positively skewed and satisfactory for regression modeling. In terms of Kurtosis, only Exchange Rate was mesokurtic, inflation rate and Interest rate (INR) are leptokurtic while recurrent expenditure (REX) and capital expenditure (CEX) are platykurtic. The probability distributions indicate that capital expenditure, recurrent expenditure and Exchange rate are strongly normally distributed while the other series are within acceptable divergence from a normal distribution.

Unit Root Test

Augmented Dickey Fuller (ADF) test for time series analysis was employed to determine the stationarity of the variables in the time series. The results are showed in Table 2.

Table 2: ADF Unit Root Test Results Summary

	Level Test Result			**First Difference Test**			
Variable	**ADF Stat**	**5% T_{cr}**	**Prob**	**ADF Stat**	**5% T_{cr}**	**Prob**	**Order**
INF	-1.30	-3.53	0.87	-5.71	-3.53	0.02	1(1)
CEX	-1.74	-3.53	0.72	-7.30	-3.53	0.00	1(1)
REX	-4.52	-3.64	0.00	-7.68	-3.66	0.00	1(0)
EXR	-1.62	-3.64	0.75	-5.48	-3.69	0.01	1(1)
INR	-4.30	-3.67	0.02	-4.12	-3.69	0.02	1(0)

Source: Researchers computation using E-views 9.0

From the ADF test results in Table 2 above, it was found that INF, CEX, and EXR were stationary at first difference. That's inflation, capital expenditure and exchange rate were integrated of order one, while recurrent expenditure (REX) and interest rate (INR) were stationary at level.

Cointegration Test

The bounds test cointegration results for the models are summarized in Table 3.

Table 3: Bounds Cointegration Test Result for The Inflation Model

Series: (INF) LOG(CEX) LOG(REX) (EXCR) (INTR)		
Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	4.9483	4
Critical Value Bounds		
Significance	I(0) Bound	I(1) Bound
10%	2.08	3.00
5%	2.39	3.38
2.5%	2.70	3.73
1%	3.06	4.15

Source: Researchers computation using E-views
NB: k denotes number of explanatory variables in the model

The test result for the model shows that the variables are co-integrated since the F-statistics (4.9483) is greater than the upper critical bound value (3.38) at 5% significance level. The null hypothesis is therefore rejected. This confirms that the variables (interest and exchange rates) in the model do have long run relationship with inflation rate (INF), thus both the long run and the short run model were estimated using the ARDL estimation technique.

Model Estimation

ARDL long-run Estimation for Public Expenditure effect on Inflation

Table 4: ARDL Long-run Results

Dependent Variable: INF
Method: Least Squares
Date: 08/28/24 Time: 10:00
Sample: 1986 2023
Included observations: 38

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(REX)	0.260002	0.040115	6.367601	0.0095
LOG(CEX)	0.021295	0.072444	0.293951	0.7712
EXR	-0.001134	0.002373	-0.477609	0.6371
INR	-0.000970	0.003789	-0.255917	0.0061

R-squared	0.416795	Mean dependent var	0.013872
Adjusted R-squared	0.136857	S.D. dependent var	0.243992
S.E. of regression	0.226682	Akaike info criterion	0.134961
Sum squared resid	1.284616	Schwarz criterion	0.695188
Log likelihood	10.43574	Hannan-Quinn criter.	0.334286
F-statistic	1.488884	Durbin-Watson stat	1.975793
Prob(F-statistic)	0.193532		

Source: Researchers Computation using E-views 10.0

Table 4 captured the ARDL long run effect of government expenditure on inflation rate. The explanatory power of the regressors as captured by the R-squared (0.4167) stood at 41.67 percent. This indicates that only 41.67% of the variations in INF can be explained by the explanatory variables in the model. The Durbin Watson stat of 1.98 indicates that the model is not spurious. The long run effect of government expenditure on inflation rate in Nigeria revealed that a percentage rise in recurrent expenditure (REX) and capital expenditure will trigger a significant rise of 0.26% and 0.02% in inflation respectively. Exchange rate and interest were revealed to have a negative relationship with inflation rate. Exchange rate and capital expenditure were insignificant while recurrent expenditure and interest rate were significant in the long-run.

ARDL Short-run Estimated Result for public expenditure on inflation rate

Table 5 ARDL Short-run Estimated Result

Dependent Variable: D(INF)
Method: Least Squares
Date: 08/28/24 Time: 11:00
Sample: 1986 2022
Included observations: 38

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(CEX)	0.000799	0.000214	3.728501	0.0136
D(REX)	0.002063	0.000366	5.635490	0.0024
D(EXR)	0.000224	4.40E-05	5.082731	0.0038
D(INR)	-51.81687	20.35496	-2.545663	0.0515
D(CEX(-1))	0.001545	0.000329	4.692124	0.0054
D(REX(-1))	0.000216	5.38E-05	4.014213	0.0102
D(INR(-1))	26.47619	1195915	2.213886	0.0777
D(EXR{-1))	0.004281	0.000834	5.133452	0.0037
D(REX(-2))	0.000725	0,000301	2.410892	0.0608
D(EXR(-2))	0.005079	0.001055	4.813510	0.0048
D(INR(-2))	-40.85556	2177494	-1.876265	0.1194
D(CEX(-2})	0.000866	0.000205	4.232362	0.0082
ECM3(-1)	-0.598206	0.176594	-3.387469	0.0195

R-squared	0.750551	Mean dependent var	0.045872
Adjusted R-squared	0.721982	S.D. dependent var	0.153992
S.E. of regression	3.394023	Akaike info criterion	0.122961
Sum squared resid	39.74569	Schwarz criterion	0.685188
Log likelihood	10.32754	Hannan-Quinn criter.	0.554286
F-statistic	35.49080	Durbin-Watson stat	2.027579
Prob(F-statistic)	0.098762		

Source: Researchers computation using E-views 10.0

The short run results presented in table above revealed that the error correction model as presented above has a correct sign and also significant in terms of statistic. This is in line with theoretical expectation. The size of the coefficient of 0.5982 approximately 0.6 indicates that about 60 percent of the deviation from equilibrium has been resolved every

year. This indicates a high speed of adjustment from short-run disequilibrium to long-run equilibrium. The R-squared and the Adjusted R-squared of 0.75 and 0.72 correspondingly shows that the estimated inflation equation has a good fit and suitable for policy formulation. Specifically, the R-squared of 0.75 reveals that almost 75 percent of the systematic changes in inflation has been explained by its determinants i.e total government expenditures captured by capital and recurrent expenditure. This result indicates that the calculated equation has an extremely high power of explanability. The large value of the F-statistics of 7.74 indicates that the general estimated regression line is significant in terms of statistics at five percent level of significance. This means that the explanatory variables have joint effect on the dependent variable which also indicated that there is evidence of a high level of linear relationship involving the endogenous and the explanatory factors in the model.

The analysis of the short-run coefficient showed that the one and two periods logged lagged values of capital and recurrent expenditure have a positive relationship with inflation in Nigeria. This means that a one percent increase in one and two periods logged lagged values in capital and recurrent expenditure led to 0.001 percent and 0.0008 as well 0.0002 and 0.0007 percent increase in inflation respectively. Also, the results showed that the logged lagged current values of capital and recurrent expenditures have positive and significant impact on inflation in Nigeria in line with theoretical expectations. This depict that a rise of one percent in the present value of capital and recurrent expenditures will leads to a rise in inflation by 0.0007 and 0.002 percent respectively.

In a similar manner, the results also indicate that the one and two period's lagged value of interest rate has positive and negative impact on inflation respectively. Whereas the one and two lagged of exchange rate has a positive relationship with inflation. The current value of exchange rate also exhibits a positive impact on inflation.

Diagnostic Tests Results

The results for the second order test for the models are shown below.

Suitability Tests

Table 6: Serial Correlation and Heteroskedasticity Test for Model 1

Test Type	Test Stat.	p-value
Breusch-Godfrey Serial Correlation LM Test	Chi-square Stat	0.5971
Breusch-Pagan-Godfrey heteroskedasticity Test	Chi-square Stat	0.1411

Source: Researchers computation using E-views 10.0

From Table 6, the results for model 1 is not heteroskedastic as its P-value of 0.5971 is higher than 0.05. Similarly, the serial correlation test results are favourable. This is because their corresponding probability values are greater than 0.05. Hence there is no serial correlation and the heteroskedacity in the model.

Table 7: Serial Correlation and Heteroskedasticity Test for the Model

Test Type	Test Stat.	p-value
Breusch-Godfrey Serial Correlation LM Test	Chi-square Stat	0.5215
Breusch-Pagan-Godfrey heteroskedasticity Test	Chi-square Stat	0.3419

Source: Researchers computation using E-views 10.0

From Table 7, the results for model revealed no heteroskedastic as its P-value of 0.5215 is higher than 0.05. Similarly, the serial correlation test results are favourable. This is because their corresponding probability values are greater than 0.05. Hence there is no serial correlation and the heteroskedacity in the model.

Descriptive Statistics

The summary statistics as shown in table 5.8 depict the mean, standard deviation, minimum and maximum values of each of the variables during the period covered.

Table 8: Summary of Descriptive Statistics

	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	Prob
UEP	5.64E+09	6.36E+08	3.02E+10	1.2040431	9.37E+09	1.5845	4.0018	10.1263	0.0063
CEX	5.42E+09	2.31E+09	4.65E+10	2.4430816	6.01E+09	0.791826	2.0293	3.1628	0.2057
REX	2.12E+09	8.04E+08	9.67E+10	7.620541	4.04E+09	2.8305	9.9037	73.0658	0.0011
EXR	20.17845	15.20800	48.15600	10.27000	19.33230	1.5522	3.6696	8.3750	0.0026
INR	5.0472	5.1350	17.1800	-4.6300	4.6971	-1.01	2.7983	0.0857	0.8628

Source: Researchers computation using E-views

This section shows the various results obtained from descriptive and econometrics computations. Comparing the means and standard deviation for each variable, the results revealed that capital expenditure (CEX and Exchange Rate (EXR) are divergent from their means while unemployment rate (UEP) recurrent expenditure (REX) and Interest rate (INR) clustered around their means. In terms of skewness, Interest rate (INR) are negatively skewed, however the strength of the negative skewness is small as it tends toward zero, thus, the series are still safe to be use for econometric modeling. Quite the opposite, unemployment, Capital expenditure, recurrent expenditure and Exchange Rate are positively skewed and satisfactory for regression modeling. In terms of Kurtosis, only Exchange Rate was mesokurtic, interest rate and capital expenditure are leptokurtic while recurrent expenditure (REX) and Unemployment rate (UEP) are platykurtic. The probability distributions indicate that unemployment rates, recurrent expenditure and Exchange rate are strongly normally distributed while interest rate and capital expenditure are within acceptable divergence from a normal distribution.

Unit Root Test

Augmented Dickey Fuller (ADF) test for time series analysis was employed to determine the stationarity of the variables in the time series. The results are showed in Table 9.

Table 9: ADF Unit Root Test Results Summary

	Level Test Result			First Difference Test			
Variable	**ADF Stat**	**5% T_{cr}**	**Prob**	**ADF Stat**	**5% T_{cr}**	**Prob**	**Order**
UEP	-1.62	-3.64	0.75	-5.53	-3.66	0.04	1(1)
CEX	-1.74	-3.53	0.72	-7.30	-3.53	0.00	1(1)
REX	-4.52	-3.64	0.00	-7.68	-3.66	0.00	1(0)
EXR	-1.62	-3.64	0.75	-5.48	-3.69	0.01	1(1)
INR	-4.30	-3.67	0.02	-4.12	-3.69	0.02	1(0)

Source: Researchers computation using E-views

From the ADF test results in Table 2 above, it was found that UEP, CEX, and EXR were stationary at first difference. That's unemployment, capital expenditure and exchange rate were integrated of order one, while recurrent expenditure (REX) and interest rate (INR) were stationary at level.

Cointegration Test

The bounds test cointegration results for the models are summarized in Table 10.

Table 10: Bounds Cointegration Test Result for The Unemployment Model

Series: (UEP) LOG(CEX) LOG(REX) (EXCR) (INTR)		
Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	4.6543	4
Critical Value Bounds		
Significance	I(0) Bound	I(1) Bound
10%	2.06	3.01
5%	2.45	3.27
2.5%	2.70	3.73
1%	3.06	4.15

Source: Researchers computation using E-views
NB: k denotes number of explanatory variables in the model.

The test result for the model shows that the variables are co-integrated since the F-statistics (4.6543) is greater than the upper critical bound value (3.27) at 5% significance level. The null hypothesis is therefore rejected. This confirms that the variables in the model do have long run relationship with unemployment rate (UEP), thus both the long run and the short run model were estimated using the ARDL estimation technique.

Model Estimation

ARDL long-run estimation for public Expenditure on Unemployment

Table 11: ARDL Long-run Results

Dependent Variable: UEP
Method: Least Squares
Date: 08/29/24 Time: 01:00
Sample: 1990 2022
Included observations: 38

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(REX)	-0.004164	0.001049	-3.490750	0.0038
LOG(CEX)	-0.012017	0.037017	-3.324603	0.0029
EXR	0.081134	0.012373	6.557340	0.2371
INR	0.023970	0.023789	10.076087	0.0601

R-squared	0.514795	Mean dependent var	0.022872
Adjusted R-squared	0.496857	S.D. dependent var	0.113992
S.E. of regression	0.126682	Akaike info criterion	0.321961
Sum squared resid	1.284616	Schwarz criterion	0.755188
Log likelihood	10.43574	Hannan-Quinn criter.	0.324286
F-statistic	1.488884	Durbin-Watson stat	1.812793
Prob(F-statistic)	0.000002		

Source: Researchers computation using E-views 10.0

Table 11 captured the ARDL long run effect of public expenditure on unemployment rate. The explanatory power of the regressors as captured by the R-squared (0.51479) stood at 51.5 percent. This indicates that only 51.5% of the variations in unemployment can be explained by the explanatory variables in the model. The Durbin Watson stat of 1.81 indicates that the model is not spurious. The long run effect of public expenditure on unemployment rate in Nigeria revealed that capital and recurrent expenditure in Nigeria have a negative relationship with unemployment in the long run. Meaning that, a percentage rise in recurrent expenditure (REX) and capital expenditure will result to a significant reduction of 0.41% and 1.2% in unemployment rate in Nigeria respectively. Exchange rate and interest were revealed to have a positive relationship with unemployment rate but insignificant.

ARDL Short-run Estimated Result for public expenditure on unemployment rate

Table 12: ARDL Short-run Estimated Result

Dependent Variable: D(UEP)
Method: Least Squares
Date: 08/29/24 Time: 01:30
Sample: 1990 2022
Included observations: 38

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(REX)	-0.081231	1.234513	-0.065800	0.0469
D(CEX)	-0.260002	0.040115	-6.367601	0.0095
D(INR)	0.021295	0.072444	0.293951	0.7712
D(EXR)	6.09E-05	1.98E-05	3.079083	0.0105
D(REX(-1))	-0.001134	0.002373	-0.477609	0.6371
D(CEX(-1))	-0.191734	0.209726	-0.914208	0.0002
D(EXR(-1))	8.64E-05	8.23E-05	1.050228	0.3161
D(INR(-1))	0.000970	0.003789	0.255917	0.0061
D(REX(-2))	- 0.000388	0.000145	-2.670335	0.0218
D(CEX(-2))	-0.224798	0.211101	-1.064883	0.0097
ECM(-1)	-0.472327	0.165746	-2.849703	0.0032

R-squared	0.671720	Mean dependent var	5.943735
Adjusted R-squared	0.651419	S.D. dependent var	15.50874
S.E. of regression	17.07666	Akaike info criterion	8.783866
Sum squared resid	6415.468	Schwarz criterion	9.322582
Log likelihood	-137.3257	Hannan-Quinn criter.	8.967584
F-statistic	14.54391	Durbin-Watson stat	2.137958
Prob(F-statistic)	0.000633		

Source: Researchers Computation

The short run results presented in table 12 above revealed that the error correction model as presented above has a correct sign and also significant in terms of statistic. This is in line with theoretical expectation. This indicates that about 47 percent disequilibrium in unemployment rate has been corrected each year. This is fairly a fair speed of adjustment from short-run disequilibrium to the long-run equilibrium.

The R-squared and the Adjusted R-squared of 0.67 and 0.65 respectively shows that the estimated unemployment equation has a good fit and suitable for policy formulation. Specifically, the adjusted R-squared of 0.67 reveals that almost 67 percent of the systematic changes in unemployment has been explained by its determinants i.e. total government expenditures captured by capital and recurrent expenditure. This result indicates that the calculated equation has a high power of explainability. The large value of the F-statistics of 14.54 indicates that the general estimated regression line is significant in terms of statistics at five percent level of significance. This means that the explanatory variables have joint effect on the dependent variable which also indicated that there is evidence of a high level of linear relationship involving the endogenous and the explanatory factors in the model.

The analysis of the short-run coefficient showed that the one and two periods logged lagged values of capital and recurrent expenditure have a negative relationship with unemployment in Nigeria. This means that a one percent increase in one and two periods logged lagged values in capital and recurrent expenditure led to 0.19 percent and 0.001 as well 0.224 and 0.0003 percent reduction in unemployment respectively. Also, the results showed that the logged lagged current values of capital and recurrent expenditures have negative impact on unemployment in Nigeria in line with theoretical expectations. This depict that a rise of one percent in the present value of capital and recurrent expenditures will leads to a decline in unemployment by 0.260 and 0.081 percent respectively. In a similar manner, the results also indicate that the present and one period's lagged value of interest rate and exchange rate have positive impact on unemployment. Whereas the one and two lagged of exchange rate has a positive relationship with unemployment rate. The current value of exchange rate also exhibits a positive impact on unemployment.

Test of Hypotheses

The following hypotheses were tested at the 5% (0.05) significance level.

Hypothesis One: Capital government spending has no significant effect on inflation and unemployment in Nigeria.

The first hypothesis which posited that capital government spending has no significant effect on inflation and unemployment in Nigeria is rejected based on the significant value of P.value at 5% level of significant. Thus, this study concludes that capital government spending has significant effect on inflation and unemployment in Nigeria.

Hypothesis Two: Recurrent government expenditure has no significant effect on inflation and unemployment in Nigeria.

The second hypothesis which states that recurrent government expenditure has no significant effect on inflation and unemployment in Nigeria. Owing to the significance of the probability value of the coefficient for recurrent expenditure, the null hypothesis is rejected. The study therefore concludes that recurrent expenditure has a significant effect on inflation and unemployment rate in Nigeria between 1986 and 2023

Discussion of Result

Objective One

The first objective of this study which is to examine the effect of capital spending on inflation and unemployment in Nigeria, both the long run and short run results revealed that capital expenditure has a positive and significant effect on inflation in Nigeria, while unemployment has a negative relationship with capital and recurrent expenditure both on the long and short run between the period under review. The implication of the result is that government capital expenditure is a factor responsible for increase in inflation and reduction of unemployment in Nigeria. The result agrees with the Keynesian theory of government expenditure which state that as government expenditure increases

aggregate demand will increase that will transmit into increase in income, employment and price. In the same token, the study findings is in conformity with study conducted by Shifaniya et al (2022), Rangkuty et al (2020), Sriyana (2019), Madito and Odhiambo (2018), Anokwuru and Ekpenyoug (2020). The studies associated with capital expenditure and unemployment are study conducted by Sinha (2023), Nwamuo (2022), Ebi and Ibe (2019) and Onuoha and Agbede (2019).

Objective Two

The second objective of this study which is to examine the effect of recurrent expenditure on inflation and unemployment in Nigeria, the long run and short run results exposed that recurrent expenditure have positive and significant effect on inflation in Nigeria, whereas unemployment has a negative relationship with capital and recurrent expenditure both on the long and short run between the period under review. These suggest that recurrent expenditure is a reason for increase in inflation and employment in Nigeria. The result agrees with the Keynesian theory of government expenditure which state that as government expenditure increases aggregate demand will increase that will transmit into increase in income, employment and price. Shifaniya et al (2022), Rangkuty et al (2020), Sriyana (2019), Madito and Odhiambo (2018), Anokwuru and Ekpenyoug (2020), Sinha (2023), Nwamuo (2022), Ebi and Ibe (2019) and Onuoha and Agbede (2019) found a positive and negative relationship between inflation and unemployment with recurrent expenditure respectively.

Objective Three

The third objective is to examine between recurrent and capital expenditures, which one has greater impact on inflation and unemployment in Nigeria. From the short and long run result of the unemployment model, it is observed that capital expenditure exerts more influence on unemployment than recurrent expenditure. This is evidence on the coefficient of the variables in the short run result in the current period where one percent increase in capital and recurrent expenditure will lead to 0.2 and 0.08 percent increase in employment respectively. Also, the analysis of the short-run coefficient showed that capital expenditure pressure more than the recurrent expenditure in one and two period's logged lagged values of capital and recurrent expenditure. This means that a one percent increase in one and two periods logged lagged values in capital and recurrent expenditure led to 0.19 percent and 0.001 as well 0.224 and 0.0003 percent reduction in unemployment respectively. The implication is that budgetary allocation of capital expenditure in year in year out should be increase in order to tackle the lingering unemployment in Nigeria. In inflation model, the short run result revealed that recurrent expenditure has greater impact than capital expenditure on inflation. The implication is that, the more the government allocates funds to recurrent expenditure, the more inflation will occur. This show that as recurrent expenditure is increased, household income will increase, consumption will be stimulation and demand will rise, price will also rise.

Summary of Findings

The summary of major findings in the study thereby includes the followings: - Government expenditure (capital and recurrent) has a positive as well as significant impact on inflation rate in line with theoretical expectation. This implies that increase in government expenditure will raise aggregate demand thereby increasing the prices of goods and services, hence inflation. This agrees with the Keynesian theory of inflation. It implies that persistent price increase is caused by the growth rate of government expenditure especially the recurrent expenditure.

Government expenditure (capital and recurrent) has a negative and significant relationship with unemployment rates. This implies that government expenditure played a significant role in employment generation in Nigeria.

Conclusion

This study is conducted to empirically find out the relationship among government spending, inflation as well as unemployment rates in Nigeria by means of time series data using various descriptive and econometric techniques in estimating the relevant relationship. The assumption of this study is that government expenditure is relevant in influencing macro-economic variables in an economy. This is because increase government expenditure will increase aggregate demand, investment, and production and generate employment opportunities. However, whether this opinion hold for Nigeria remains an empirical issue and that was the primary objective for undertaking this study. The empirical results indicate that total government expenditures (capital and recurrent expenditure) have positive impact on inflation in Nigeria. Also, recurrent and capital expenditures have negative influence on unemployment rate in the country. Further examination of the results reveals that there is a long run relationship between inflation, unemployment and government expenditure.

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