

Public Sector Spending and Social Welfare: Evidence from Nigeria

Asian Asian Umobong and Ambaiwei Tari Ebiowei

PhD, Department of Accounting, University of Port Harcourt, Port Harcourt, Nigeria

Abstract: The study examined the effect of Government Spending on social welfare in Nigeria for the period 1970-2022 based on data obtained from central bank annual bulletin and world bank and using auto regressive distributive Lag to determine the short run and long run effects of the variable of study. Public sector spending was the independent variable proxied as Capital and recurrent expenditure with total expenditure considered for robustness while social welfare was measured in terms of unemployment and inflation in the economy. The higher the rate of inflation the lower the value of money and the lower the welfare and standard of living of citizens while the higher the unemployment rate the lower the number of persons employed and the lower the social welfare of citizens. The goal of government fiscal policy is to achieve low inflation simultaneously with low unemployment. Result revealed a significant negative long run effect of capital expenditure, recurrent expenditure and total expenditure on inflation implying public spending can be used to curtail inflation. This aligns with the Keynesian theory that government interventions can boost production of goods and services thereby curtailing inflation. Capital expenditure and total expenditure significantly lead to reduction in unemployment in Nigeria. From the result of the study we confirmed that long run public sector spending mitigate inflation and unemployment simultaneously thus rejecting Philip curve which suggest inverse relationship. Based on the result of the study, government should boost capital expenditure to reduce unemployment. To reduce inflation government should increase spending to boost welfare of citizens.

Keywords: Capital Expenditure, Recurrent Expenditure, Inflation, Unemployment, Social Welfare.

INTRODUCTION

Globally governments perform the twin role of revenue generation and deployment of resources to satisfy the citizens' needs. This latter role is achieved through provision of infrastructure, social amenities employment, reduction of poverty, income inequality, and redistribution of wealth. The performance of these responsibilities necessitates the intervention in the economic process leading to imperfection in economy caused by poor policy implementation, forces of demand and supply and external influences. Based on the foregoing, it is imperative for governmental intervention through fiscal policies to stabilize the economy. In recognition of the significance of this role, the United Nations Sustainable development goal which Nigeria is a signatory highlighted the various goals government is expected to achieve to enhance quality of life for the citizens. Poverty alleviation, improved standard of living and full employment are some of the goals signatories are expected to achieve. In performing these roles, government employ intervention and policies which help to prevent economic crises and mitigate negative effects (Tenny, 2021)

Government spending remains a major tool in the process of enhancing the citizens' welfare. Many countries today use expenditure to influence the economy by allocating resources to desired areas and improve income distribution. In third world countries, the variation in government spending pattern is projected to guarantee stabilization, spur economic growth and expand employment

opportunities. However, the question presently agitating the minds of scholars, citizens and even the government of many countries is whether governmental spending achieves the necessary economic goal of development whilst simultaneously achieving poverty alleviation, income redistribution and even development of various segments of the economy. The risks associated with government expenditure are that partly the expenditure goal may be unachievable, ineffective and unproductive thereby energising critics that often ask questions about its effectiveness. It is a common scenario that public sector spending ends up in areas that are unproductive thereby lending support to opponents of fiscal interventions in the economy such as Milton Friedman.

The influence of government expenditure on citizens' welfare still remains unclear in Nigeria. Public sector spending impact the economic, social and private life of the people as well as the quality of goods and services introduced to and enjoyed by the people. Nigeria as a developing economy has adopted various fiscal policies to enhance social welfare. These policies concentrate on increasing public spending to diversify the economy and enhance social welfare. Empirical evidence on the effect of government expenditure on the economy especially for developing economies like Nigeria, present two opposing views, some suggesting that government expenditure has negative effect on social welfare

(Raifu, *et al.*, 2024; Aydin & Esen, 2019; Barlas, 2020; Saidu & Ibrahim, 2019). In contrast, other studies established that government spending promotes development of a country and enhance citizens welfare (Nnachi, Eze and Elekwa, (2023, Kunwar (2019); Nyarko-Asomani, *et al.*, (2019); Ahuja & Pandit, 2020; Awode & Akpa, 2018; Bose, Haque & Osborn, 2007; Olayungbo & Olayemi, 2018). Others have found the relationship to be insignificant (Ogar, *et al.*, 2019). The conflicting results can be attributed to differences in methodological approach, scope, or dataset. Irrespective of which of the argument may be more convincing, what remains obvious is that there is need for further studies to go beyond their specifications and methodologies. First, the study covers a large period between 1970 and 2022, which is sufficient for time series analysis. Based on this timeline, the research will be able to investigate the long-run and short-run impact of government expenditure on social welfare of citizens in Nigeria.

Nigeria is currently experiencing food crisis, high unemployment rate, galloping inflation, high poverty level, lack of adequate drinking water, high infant mortality rate, large number of out of school children and poor health facilities. Other associated malaises to these problems are disloyalty, dishonesty and lack of integrity amongst people, increase in crime rate such as kidnapping, killing for rituals, arm robbery, frauds and embezzlements.

Unemployment and rising inflation are some of the major problem currently being faced in the 21st century and Nigeria is not an exemption. Unemployment is a situation whereby people who are physically fit, capable, qualified and ready to work at any time are without jobs. The issue of unemployment is one of the macro-economic problems of a nation. Over the last decade, there have been arguments among economist, government officials and businessmen on the nexus of government spending on inflation and unemployment and economic performance. This has triggered scholars and academics to conduct a lot of research on the relation-ship that exist between inflation and unemployment. They argued on the effect of inflation and unemployment on economic growth of a given area or country.

Closely associated with the vice of unemployment are persistent increases in prices of goods and services. With increase in prices of goods and services, larger quantity of the country currency is

chasing fewer goods thus there is a fall in monetary value. The issue of unemployment and inflation is a major issue in Nigeria as the citizens are persistently groaning over this malaise. This has not only heightened poverty but has caused many untimely death and starvation

The problems are exacerbated by dwindling oil revenue upon which the country relies for its sustenance, mismanagement of resources which causes leakages to funds provided for development, capital flight, poor infrastructure and poorly developed agricultural system which is still subsistence.. The problems are further accentuated by population increase, devaluation of the country's currency and subsidy removal.

Despite these challenges, governments continue to increase spending on all fronts with a view toward ameliorating the burden of citizens. Interestingly, every government regime comes with its own agenda to spur economic growth and social welfare, but none has been able to achieve the desired goal. It is however a subject of debate how increased expenditure by government has impacted the standard of living and welfare of citizens. The problem is that the economic growth recorded has not translated into improved welfare as expected in some nations (Jeff-Anyeneh & Ibenta, 2019). Therefore based on the conflicting results obtained from prior studies, non-agreement of theoretical postulations and the increasing need of improved social welfare in developing countries where citizens welfare does not match government expenditure there is need for studies on the subject of citizens welfare and public spending

LITERATURE

Theoretical Underpinning

Many theoretical propositions have been made to situate the significance of public spending as a correlation of economic development and citizens' welfare in a country. However, these propositions are conflicting. Theoretical propositions such as Richardson equivalence principle, classical economic theory, Wagner's law, and Keynesian theory and associated theory derived there from contributes to the raging debate in the literature of public sector expenditure. These conflicting theoretical propositions ignite debate and discourse on the subject of governmental spending and relevance to economic development and social welfare.

The neoclassical scholars assert that an expansionary fiscal policy has no positive effect on

economic activity. According to these scholars, economic revitalization plans based on public expenditure would have a depressing effect on the economy since public spending crowds out private investment and consumption. Alternatively, Keynesian theory argues that governments need to intervene in order to enhance economic development. In addition, the multiplier effect is a development of Keynesian theory positing that government spending intended to stimulate economic growth may also enhance private spending, thereby resulting in a synergistic stimulation of economic growth (Liu, *et al.*, 2020). This assertion by the Keynesians recognizes the detrimental and contagious effect of inflation on economic enhancement as it discourages domestic production and creates a favorable atmosphere for foreign goods to compete with the domestic market, encourages deficit balance in the international payment transaction, uncertainty in the profitability of future investment projects, redistributes income in a haphazard way, reduction in purchasing power of money, which results in frequent agitations by a trade union to increase workers' salaries, interacts with the tax system to distort the decision between lenders and borrowers and above all places a huge toll on individuals with fixed income or fixed interest rate on assets (Al-Taeshi, 2016; D. Chude & N. Chude, 2015; Eggoh & Muhammad, 2014; Olu & Idih, 2015). Based on the forgoing, this study is anchored on the Keynesian economic theory and suggests that government intervention is relevant for economic growth and by extension ignite improvements in standard of living of the citizenry.

Relationship between Inflation and Unemployment

From the perspective of Inflation and unemployment many theoretical postulations have been made to situate the nature of relationship between inflation and unemployment. In 1958 Phillips found the relationship between unemployment and inflation. He stated that there is an inverse relationship between unemployment and inflation. The Phillips curve shows that the higher the unemployment rate, the lower the rate of inflation and low unemployment rate can be achieved by high inflation. It is a different issue in the long run, because at the long run most research study stated that there is little positive significant relationship between inflation and unemployment. There is also the Friedman-Phelps version of the Phillips curve; it is the accelerations Phillips curve. Using the adaptive expectations method, it

indicates that in order to keep the unemployment rate below the natural rate of unemployment, what matters is not the inflation rate but its variation. Friedman-Phelps version of Philip curve shows the way an economy may move from a Phillips phase to a stagflation phase and then to a recovery phase.

2.3. Empirical Review

Kabiru (2023) examined the influence of government expenditures on no poverty objective of sustainable development goals in Nigeria over the period of 1984-2020. Result shows that actual capital expenditure, budgeted capital expenditure, budgeted recurrent expenditure and population growth are statistically significant in explaining changes in poverty while actual recurrent expenditure and exchange rate are statistically insignificant.

Oriakhi (2021) examined the relationship between poverty reduction, government expenditure, and economic growth in Nigeria. Findings indicate that there exists a bi-directional relationship between variables. Each variable explained to different percentage levels, variations in shocks in itself and in other variables of the model at different periods. In general, there exists a bi-directional causality between total government expenditure and poverty reduction in Nigeria.

Falade (2024) nexus between government spending and inflation in Nigeria using a Smooth Transition Regression model (STR) to investigate both the linear and nonlinear effects of government expenditure on inflation from 2000 to 2023. The study revealed linear approximation fails to sufficiently provide insights to the non-linear impacts of government spending on inflation especially on high-growth regimes financed by central bank.

Aderinto and Fasewa (2023) explored the effect of government expenditure on inflation in Nigeria. Short run estimates reveal government capital expenditure has a significantly negative relationship with inflation while recurrent expenditure has a positive relationship with inflation. The impulse response test 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.

Akodi, Umeora and Atueyi (2021) examined the effect of government expenditure on inflation rate in Nigeria within a period of 39 years spanning (1981-2019). Findings indicate government

expenditure on education has a positive and insignificant effect on inflation. Study also showed government expenditure on agriculture and education have positive but insignificant effect on inflation, while government expenditure on health and telecommunication have positive and significant effect on inflation.

Olurin, *et al.*, (2024) investigated the impact of government expenditure on inflation and economic growth in Nigeria from 1989 to 2021. Empirical result obtained from the study revealed that government expenditure and inflation have positive and significant impact on economic growth in Nigeria.

OLOGBENLA (2022) examined the relationship between inflation and government spending in Nigeria for the period 1985 to 2017. Study showed inflation has positive significant influence on government spending in Nigeria over the study period. Money supply is positively related with government spending in the recent years. Meanwhile exchange rate over the study periods showed a significant reduction in government spending in Nigeria in the recent years because a rise in exchange rate reduced the value of naira and hence affect the government expenditure negatively.

Nnachi, Eze and Elekwa(2023) examined the impact government expenditure on inflation rate in Nigeria from 1986 to 2021. The results showed that government expenditures on education, health, transports and communications, and pensions and gratuities had significant positive influence on inflation rate in both the short-run and the long-run. In contrast, the results indicated that government spending on agriculture, and roads and constructions exerted positive and significant impact on inflation rate in the short-run but inconsequential in the long-run

Raifu, *et al.*, (2024) investigates the role of institutional quality in the government expenditure-unemployment nexus in Nigeria using different components of government expenditures (total, recurrent, and capital expenditures) from 1984 to 2019. The key findings are as follows: (i) unidirectional causality runs from unemployment to total and capital expenditure and a partial unidirectional causality runs from recurrent expenditure to unemployment; (ii) total and capital expenditures are pro-employment in the long run, while the recurrent expenditure is only pro-employment in the short run; (iii) institutional

quality is detrimental to employment in the long run; and (iv) institutional quality significantly moderates the impact of government expenditure on unemployment in Nigeria.

Obisike and Victoria (2023) Government social expenditures are meant not only to increase human capital but also to reduce employment rate in Nigeria. study revealed government recurrent expenditure relates insignificantly with unemployment in Nigeria while there is significant relationship of capital expenditure with unemployment. Also, result show significant negative relationship of recurrent and capital expenditure on health and education and unemployment in Nigeria.

Oseni and Ayelade (2023) investigated effect of capital expenditure on unemployment rate in Nigeria from 1981 to 2020. The findings revealed capital expenditure and gross capital formation have negative significant effect on unemployment rate in Nigeria while labour force and gross domestic product had a positive and significant impact on unemployment.

Haug and King (2011) examined the empirical evidence on Inflation and Unemployment in the Long Run provides evidence in accordance with the predictions of Friedman (1977) they found a positive relationship between inflation and unemployment in the medium to long run.

Vijayakumar (2013) scrutinized the nexus among poverty, economic growth, employment and dependency ratio in developing countries. The research makes use of the OLS method, correlation and econometric tools. Two models employed in the analysis are the goodness of fit because both p-value and F-statistics in the models are less than 5%. The results bring to light the fact that the age dependency ratio has had a tremendous impact on poverty and poverty has had a relatively very high impact on the age dependency.

araireh (2021) r, we estimate the effects of Government spending on unemployment in Jordan for the period 1990 to 2019. By using the ARDL co-integration test we found a negative and statistically significant long-run relationship between government spending and the unemployment rate in Jordan. An increase in government spending by a per cent of GDP is found to reduce unemployment by about 0.43 percentage points in the same year. We also noticed that, in the short-run, government spending has a positive and significant impact on

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METHODOLOGY

3.7.1 Independent variables

The independent variables used in the study are Capital expenditure and Recurrent Expenditure.

3.7.2 Dependent variable

The dependent variables for this study are inflation and unemployment rate.

3.7.3 Control variables

The control variable for the study is money supply. Essentially because the volume of money in circulation will impact on economic activities.

Measurement of Variables summarized on Table Measurement of Variables

Independent Variable	Measurement	Expected Sign
Capital Expenditure (CAE)	ratio of total capital expenditure in a given fiscal year reported by CBN	Positive
Recurrent Expenditure (REX)	total recurrent expenditure reported by CBN	Positive
Total Expenditure	Total expenditure of government as reported by CBN	Positive
Dependent Variable		
Inflation (INF)	Changes in prices of goods and services over a certain base year	Negative
Unemployment rate (UNE)	Defined as total number of Nigerians unable to find job as a percentage of Nigerians of workable age	Negative
control Variables:		
Money supply (MOS)	Amount of money is circulation as determined by CBN	Negative/positive

Model Specification

$$\Delta INF_t = \beta_0 + \sum \beta_1 \Delta Log CAE_{t-1} + \sum \beta_2 \Delta Log REX_{t-1} + \sum \beta_3 \Delta Log TEX_{t-1} + \sum \beta_4 \Delta Log MOST_{t-1} + \alpha_0 + \alpha_1 \Delta Log CAE_{t-1} + \alpha_2 \Delta Log REX_{t-1} + \alpha_3 \Delta Log TEX_{t-1} + \alpha_4 \Delta Log MOS_{t-1} + U_2, t \dots \dots \dots (xiii)$$

$$\Delta UNE_t = \beta_0 + \sum \beta_1 \Delta Log CAE_{t-1} + \sum \beta_2 \Delta Log REX_{t-1} + \sum \beta_3 \Delta Log TEX_{t-1} + \sum \beta_4 \Delta Log MOST_{t-1} + \alpha_0 + \alpha_1 \Delta Log CAE_{t-1} + \alpha_2 \Delta Log REX_{t-1} + \alpha_3 \Delta Log TEX_{t-1} + \alpha_4 \Delta Log MOS_{t-1} + U_3, t \dots \dots \dots (xiv)$$

The ARDL long-run model is estimated if cointegration is found while the short-run model is estimated if otherwise

$$\Delta INF = \beta_0 + \beta_1 Log CAE_{t-1} + \beta_2 Log REX_{t-1} + \beta_3 Log TEX_{t-1} + \beta_4 Log MOST_{t-1} + U_2, t \dots \dots \dots (xvii)$$

$$\Delta UNE = + U_3, t \dots \dots (xviii) \beta_0 + \beta_1 Log CAE_{t-1} + \beta_2 Log REX_{t-1} + \beta_3 Log TEX_{t-1} + \beta_4 Log MOST_{t-1} \\ \Delta INF = \alpha_0 + \alpha_1 \sum \Delta Log CAE_{t-1} + \alpha_2 \sum \Delta Log REX_{t-1} + \alpha_3 \sum \Delta Log TEX_{t-1} + \alpha_4 \sum \Delta Log MOS_{t-1} + ECM + U_2 \\ \Delta UNE = \alpha_0 + \alpha_1 \sum \Delta Log CAE_{t-1} + \alpha_2 \sum \Delta Log REX_{t-1} + \alpha_3 \sum \Delta Log TEX_{t-1} + \alpha_4 \sum \Delta Log MOS_{t-1} + ECM + U_3$$

RESULTS

4.2 Descriptive Statistics

4.2.1 Trend Analysis

The trends in unemployment rate in the country as shown in Figure 4.2, indicates that there were periods of relatively low unemployment rate between the 1970s and late 1990s. As from early 2000's unemployment rate increased massively and has remained high since then, reaching over 35

percent in 2022. Thus, it is seen that unemployment rate has remained a major

macroeconomic challenge in Nigeria.

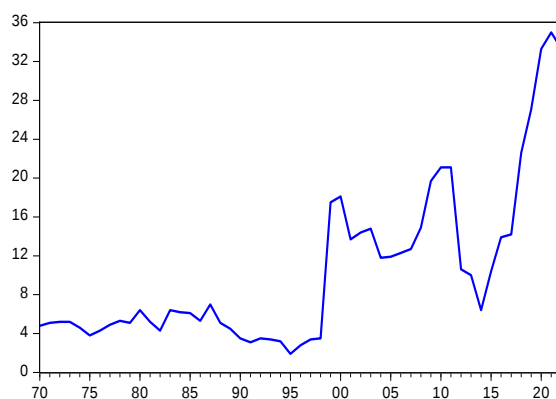


Fig. 4.2: Trends in UNE

The trend in inflation rate is reported in Figure 4.3, and it shows that inflation rate has been unstable over the years. This can lead to poor development outcomes since changes in price level are not easily predictable in the country. There are periods of peak inflation rates like in the late 1980s and in the 1990s as well as in the mid-1970s. There are also periods of relative stability in inflation rate

(although it was still rising) like the rate has remained since 2010. The trend in real GHDP over the years, as shown in Figure 4.4, indicates that GDP has grown steadily over the years, apart from the recession of the early 1980s which was caused by massive reduction in expenditure due to lower revenues.

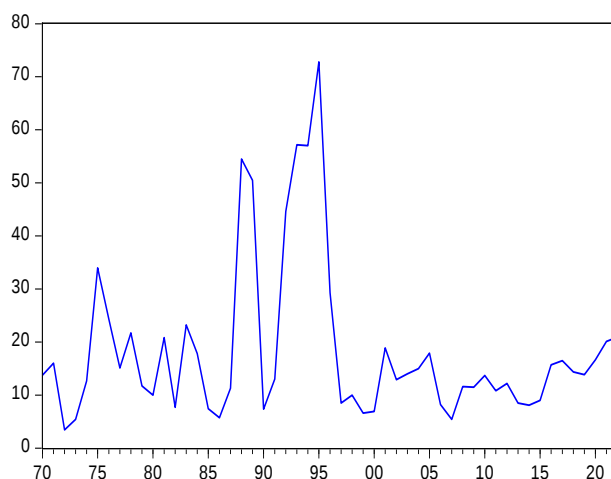


Fig. 4.3: Trends in INF

The trend in public expenditure (in terms of recurrent and capital) is presented in Figure 4.4. Generally, recurrent expenditure has dominated government's fiscal application over the years. The proportion of recurrent expenditure reached over 80 percent in 2003 and was well over 75 percent in many of the years. It is seen that the share of capital expenditure increased significantly in mid-1970s (following the oil boom), but it quickly reduced in the 1980s. The share of capital

expenditure in total expenditure was higher than the share of recurrent expenditure between 1975 and in 1996 and 1997. For the other years, recurrent expenditure dominated. Also, the share of recurrent expenditure has remained very high since the advent of democracy in Nigeria from 1999. Thus, the less directly productive recurrent expenditure has been the main bulk of fiscal spending in Nigeria over the years.

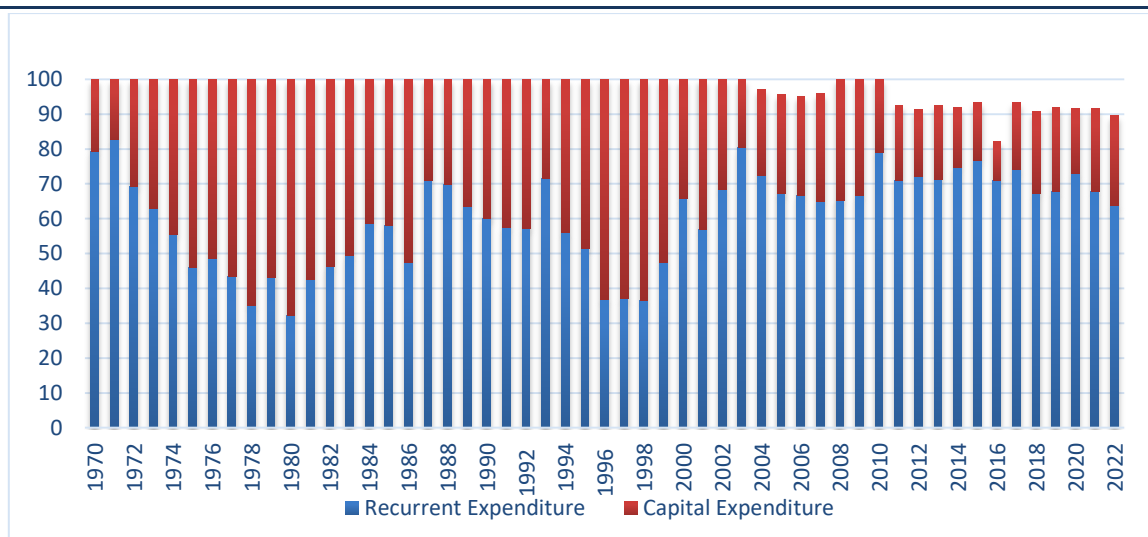


Fig. 4.4: Trends in Recurrent and Capital Expenditure

4.2.2 Summary Statistics

Table 2 depicts descriptive statistics for the study. Average unemployment rate is 10.56 percent, which is double digit and shows that unemployment has remained high in Nigeria. The standard deviation of 8.42 is also less than the mean value which indicates that unemployment

has been generally around the mean value over the years. Inflation rate is also 18.51 percent on average, with a maximum of 20.94 percent and a minimum of 5.4 percent. This shows that inflation rate has been quite high in Nigeria over the years and has remained at double digits for most of the years.

Table 2: Descriptive Statistics for Panel Data

Variable	Mean	Max.	Min.	Std. Dev.	Skew.	Kurt.	J-B	Prob
UNE	10.56	35.00	1.90	8.42	1.39	4.26	20.05	0.00
INFL	18.51	72.80	3.46	15.28	1.95	6.13	54.04	0.00
TEXG	23.77	176.36	-82.24	42.59	1.13	5.79	27.89	0.00
CEXG	27.39	166.67	-78.57	52.07	0.91	4.01	9.34	0.01
REXG	37.18	860.00	-87.80	123.74	5.81	39.17	3126.02	0.00
MOSG	120.59	5136.53	-99.88	709.62	6.99	49.91	5190.70	0.00
POPG	2.67	3.11	2.28	0.18	0.60	3.32	3.37	0.19
TOPEN	29.63	55.02	7.52	10.38	-0.19	2.72	0.50	0.78

The average growth rates of the expenditure variables are also reported on the Table 2. Average growth rate of recurrent expenditure at 37.18 percent per annum is highest among the expenditure components. The table discloses that recurrent expenditure increases faster than total expenditure over time. The table also indicated significant rise in recurrent expenditure occurs in some periods culminating to a maximum of 860

percentage points. The country population grow by 2.67 per annum during the period of the study.

Correlation Analysis

To determine how the variables relate and ascertain whether Multicollinearity exist amongst the variable, correlation analysis was conducted considering the general increases in both recurrent and capital expenditure. The result is presented on table 3

Table 3: Correlation Matrix

Correlation										
Probability	HDI	UNE	INFL	LGDP	TEX	CEX	REX	MOS	POP	TOPEN
UNE	0.6264	1.000								
	0.00	-----								
INFL	-0.0238	-0.2460	1.000							

	0.86	0.07	-----							
	0.0000	0.00	0.31	0.00						
TEX	0.5911	0.8733	-0.102	0.707	1.000					
	0.00	0.00	0.46	0.00	-----					
CEX	0.5614	0.8141	-0.092	0.673	0.985	1.000				
	0.00	0.00	0.50	0.00	0.00	-----				
REX	0.5974	0.815	-0.105	0.714	0.998	0.974	1.000			
	0.00	0.00	0.45	0.00	0.00	0.00	-----			
MOS	0.5970	0.7822	-0.155	0.731	0.939	0.899	0.947	1.000		
	0.00	0.00	0.26	0.00	0.00	0.00	0.00	-----		
POP	0.8878	0.751	-0.148	0.962	0.804	0.765	0.812	0.808	1.000	
	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.00	-----	
TOPEN	0.1267	-0.019	0.09	0.225	-0.125	-0.081	-0.143	-0.177	0.037	1.000
	0.36	0.89	0.48	0.10	0.31	0.50	0.30	0.20	0.79	-----

From the table, positive correlation exist with total expenditure and recurrent expenditure having correlation co-efficient of 0.998 while total expenditure and capital expenditure correlate with a co-efficient of 0.985. Additionally, Capital expenditure and recurrent expenditure has a correlation co-efficient of 0.974. This result confirms high correlation that prevents inclusion of the variables in one equation. To circumvent this anomaly, the variables are estimated in a recursive manner thereby eliminating effect of multicollinearity.

4.3 Tests for Time Series Properties of Dataset

4.3.1 Normality Test

Kernel test is adopted in this study to confirm the pattern of distribution of the data. The result of the test is depicted on figures a for Unemployment, b for inflation, c for total expenditure and d for capital expenditure respectively. The kernel density plots for each of the variables in the chart revealed none of the variables is normally distributed as the kernel plots are all concentrated away and also spread widely from the middle of the plot. This outcome reflects the different time period and the use of a pool of different banks during data collection. This disclosure negates the use of ordinary least square in the analysis.

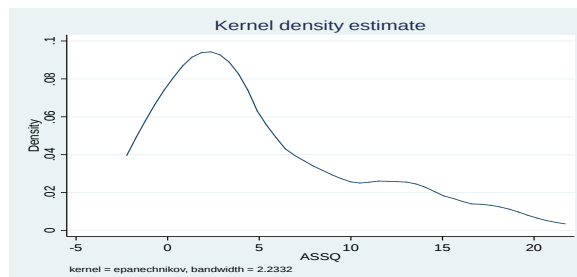
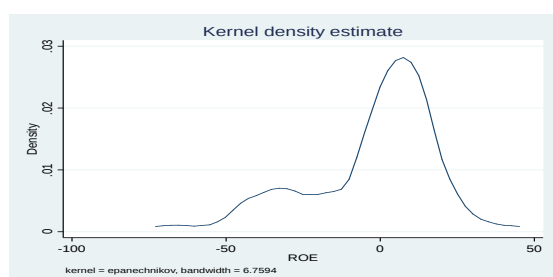


Fig. a: Kernel Density Test for UNE **Fig. b:** Kernel Density Test for INF

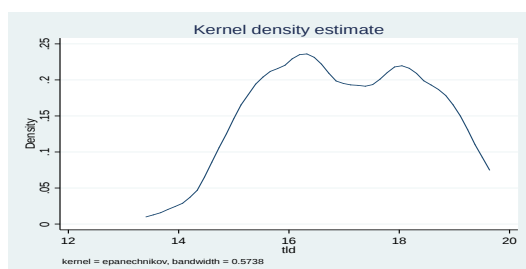


Fig. c: Kernel Density Test for TEX

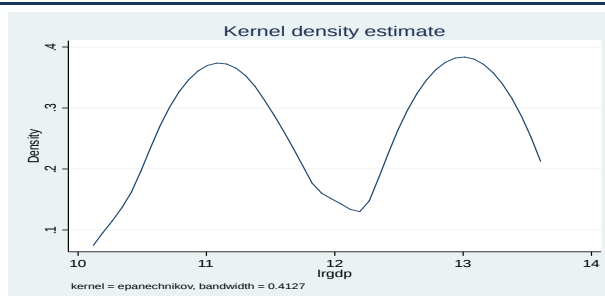


Fig. d Kernel Density Test for CEX

Source: Author's computation

4.3.2 Unit Root and Cointegration Test

The unit root test is conducted to test for stationarity which helps in observing the level of joint short-term and long-term determination of the estimation. The test for stationarity of the data series is performed using Augmented Dickey

Fuller (ADF) and the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) procedure. ADF test is an indirect process of testing for unit roots while the KPSS tests are direct in terms of the null hypothesis. The results of the unit root tests are presented in table 4.

Table 4: Unit Root test for Variables

Variable	ADF Test		KPSS		Order of Integration
	Levels	First Difference	Levels	First Difference	
INFL	-3.569*	-7.403**	0.500**	0.167	I(0)
UNE	-0.133	-5.960**	0.758**	0.176	I(1)
MOS	-1.012	-7.003**	0.512**	0.140	I(1)
TEX	-3.263*	-3.454*	0.586*	0.205	I(0)
CEX	-0.358	-8.727**	0.968*	0.193	I(1)
DEBT	0.219	-5.890**	0.771**	0.402	I(1)
REX	0.804	-5.373**	0.841**	0.273	I(1)
POP	-3.273*	-3.171*	0.144	0.991**	I(0)
TOPEN	-2.938*	-3.085*	0.252	0.498*	I(0)

Note: * indicates signifies at 5 percent; 95% critical values are reported in parentheses below each test value

Source: Author's computation

From the results of the ADF tests on table 4 columns 2 and 3, the test statistics are insignificant since they are less than the 95 percent critical values except for inflation, total expenditure, population and total population of employed Nigerians.. Conversely, the test statistic values for the series in first differences are greater than the critical values at the 5 percent significance level. This result therefore confirms that the variables are non-stationary in levels but their first differences were found to be stationary. The implicate of this findings is that variables are integrated of order one (or I[1]). However, for inflation, total expenditure, population and trade openness the variables are integrated of order zero (or I[0]).

In the case of Kwiatkowski-Phillips-Schmidt-Shin result on table 4, stationarity improve on the robustness of the unit root tests. The result shown on columns 4 and 5 revealed for each of the series, the null hypotheses of stationarity is accepted and in first differences the tests statistics failed the test,

apart from population and trade openness variables. This indicates that the series are difference-stationary and that all the variables are actually I[1].

Co-integration Test

Based on the results of the unit root test on table 4, a dynamic long run relationship can be assessed using auto regressive distributive lag approach to co-integration for dynamic analysis. Unit root tests result revealed variables are I(1) while four are essentially I(0). Based on result, we proceed with co-integration tests to establish long run equilibrium relationship amongst variables. All variables in the model are integrated of the same order. Hence, the test for common stochastic trends or co-integration is performed using Bounds co-integration test procedure to establish long run time series properties.

Assessment of bounds co integration results based on the critical F-statistic values for the lower and upper bounds is depicted on table 5 There is no

cointegration among the variables when the estimated F-value is higher than both lower test (I0 Bounds) and the upper test (I1 Bounds) values, . However, when estimated F-value lies between the two Bounds values, there is need to proceed with a lesser structure of the ARDL analysis. Conversely

when estimated value lies above both Bounds test values, there is cointegration amongst variables. The test is conducted for the two equations that explain welfare of citizens in terms of inflation and unemployment.

Table 5: Bounds Cointegration Test

Test Statistic	Value	Signif.	I(0)	I(1)
<i>Eqn: UNE</i>				
F-statistic		10%	2.37	3.2
k		5%	2.79	3.67
<i>Eqn: INF</i>				
F-statistic		10%	2.37	3.2
k		5%	2.79	3.67

From the outcome on Table 4, computed F-values for the Bounds test for each of the equations are greater than both the I(0) and I(1) at the 5 percent. The F-values pass the significance test at the 5 percent level for all the standard of living estimates. Thus, a long run relationship is established between standard of living factors and expenditure variables and other variables in the model. This confirms suitability of deployment of autoregressive distributive lag in the study.

4.3 REGRESSION ANALYSIS

We proceed with the ARDL by examining first the lag selection procedure to determine the optimal lag length that expresses the relationship between variables

4.3.1 Lag Length Selection

The lags selection helps to derive maximum lag that can produce optimum values for ARDL relationships. During lag selection, to confirm if the model is optimal Akaike Information Criterion (AIC) and Schwarz–Bayesian Criterion (SC) were used. The results are presented in Table 6.

Table 6: Lag Length Selection Criteria

No of Lags	UNE		INFL	
	AIC	SC	AIC	SC
0	2.91	1.25	2.26	0.97
1	-0.93	-0.38	-0.92	-0.95
2	-1.89	-1.52	-1.93	-1.96*
3	-1.08	-0.63	-1.34	-1.48
4	-2.73*	-2.85	-1.94*	-1.04
5	-2.68	-1.49	-0.65	-1.87

Note: * indicates selected lag.

The maximum lag length is established by evaluating the least values for both test coefficients. Result revealed for inflation and unemployment), the fourth lag is the lowest. The Schwarz–Bayesian criterion test for inflation, revealed optimality of the second lag. However, Akaike Information Criterion test for all equations four lags are selected as optimal for all equations. Therefore, first four lags are used for the vector error correction analysis.

4.3.2 Analysis of ARDL Results

The autoregressive distributed lag procedure generates two estimates; the short run estimates and the long run estimates. Co integrated results were derived from the lag selection test performed earlier. The diagnostic test relied on adjusted R-

squared values. This measure offers a consistent structure for determining nature of association between the public expenditure and standard of living measured by inflation and unemployment.

a). Public Expenditure and Unemployment

Table 7 depicts outcome of effects of government spending on unemployment. From the result, adjusted R-squared values for the equations vary from 0.432 to 0.582. For capital expenditure 58 percent of the systematic variations in unemployment were explained. The D.W. coefficients are within expected range. The impact of government spending and other variables on unemployment are considered through the coefficients of the individual explanatory variables. In the short run outcome, coefficient of

total public expenditure did not feature thereby indicating total expenditure does not contribute to unemployment in Nigeria. However, the coefficient of current and capital expenditure pass the significance test at the 1 percent level and is

positive. This shows that capital and recurrent expenditures both have positive effect on short-term changes in unemployment rates in Nigeria. This means that increasing capital and recurrent expenditure raises unemployment in the short run.

Table 7: Results for Government Expenditure and Unemployment

Variable	Total expenditure			Capital expenditure			Recurrent expenditure		
	Coeff.	t-Stat.	Prob.	Coeff.	t-Stat.	Prob.	Coeff.	t-Stat.	Prob.
<i>Short run</i>									
ΔCEX				3.154	3.00	0.01			
ΔCEX_{t-1}				-2.098	-1.78	0.08			
ΔREX							7.910	4.38	0.00
ΔREX_{t-1}							4.119	2.25	0.03
$\Delta LMOS$							2.809	4.08	0.00
$\Delta LMOS_{t-1}$							-0.805	-1.80	0.08
$\Delta LMOS_{t-2}$							-0.769	-1.87	0.07
$\Delta TOPEN$	-0.170	-2.76	0.01	-0.172	-3.23	0.00	-0.046	-0.78	0.44
$\Delta TOPEN_{t-1}$				0.308	3.60	0.00	-13.413	-4.95	0.00
$\Delta TOPEN_{t-2}$				0.151	2.55	0.02			
ECM_{t-1}	-0.312	-6.08	0.00	-0.509	-6.86	0.00	-0.180	-4.91	0.00
<i>Long run</i>									
TEX	-26.58	-3.06	0.00						
CEX				-20.96	-5.65	0.00			
REX							2.30	0.15	0.88
LMOS	-15.17	-2.77	0.01	-4.264	-1.76	0.09	20.95	0.77	0.45
TOPEN	-1.136	-2.61	0.01	-1.505	-4.54	0.00	-0.806	-1.14	0.27
POP	-0.231	-0.83	0.41	-0.453	-2.19	0.04	0.766	1.12	0.27
C	13.29	0.95	0.35	39.81	3.21	0.00	24.78	0.58	0.56
Adj. R-sq.	0.453			0.582			0.432		
D.W-stat.	1.627			2.027			1.961		

The long run results in table 7 shows that the coefficients of total expenditure and capital expenditure are both significant at the 1 percent level. This result confirms that in the long run both total and capital expenditure exert significant negative effect on unemployment. This has implication that a consistent raise in capital expenditure reduces unemployment in Nigeria significantly after all long run adjustments. Capital expenditure raises unemployment in the short run, but addresses the problem of unemployment in the long run. The coefficient of recurrent expenditure failed the significance test at the 5 percent level indicating that long run changes in unemployment do not respond to changes in recurrent expenditure in Nigeria. The coefficients of money supply and trade openness are both significant and negative indicating that raising money supply or trade openness will lead to reduction in unemployment in Nigeria in the long run.

Public Expenditure and Inflation

The focus is on the dynamic and inter-temporal effects of the public expenditure variables on inflationary pressure in Nigeria. The results are reported in Table .8. The goodness of fit coefficients are generally impressive, with the adjusted R-squared values for each of the equations at relatively high (apart from the equation with recurrent expenditure). In the short run estimates reported in the upper panel of the results, the current and three-period lagged coefficients of all the expenditure variables are included, indicating that public expenditure has a very strong dynamic relationship with inflationary pressure in Nigeria. The coefficient of current total expenditure variable fails the test while those of the first to the third lags are all significant. This shows that total expenditure has a positive and delayed effect on inflation in Nigeria. Increasing expenditure will significantly raise inflationary pressures in the short run in Nigeria. The coefficient of current and third lag of capital expenditure is both significant. However, the coefficient of current capital expenditure is

positive, while that of lagged capital expenditure is negative. This shows that capital expenditure tends to exert negative immediate impact but positive delayed impact on inflation. The coefficients of recurrent expenditure for the first and second lags are significant and positive. This shows that recurrent expenditure also exerts significant positive impact on inflation in the short run.

The coefficient of the error correction terms for each of the equations is significant at the 1 percent level and has the expected negative sign. This shows that any short-term deviation of inflation from its long run equilibrium path will be restored

in the long run. The coefficient of the error correction terms for the equations with CEX and TEX are similar with values around -0.5 which shows that adjustment to long run equilibrium for inflation is moderate in Nigeria. This is because just half of long run adjustment is completed in the first period. For the equation with REX, the coefficient of the error correction term is greater than one in absolute value. This indicates that adjustment to equilibrium is not asymptotic, rather recurrent expenditure enforces an unstable adjustment.

Table 8: Results for Government Expenditure and Inflation Rate

Variable	Total expenditure			Capital expenditure			Recurrent expenditure		
	Coeff.	t-Stat.	Prob.	Coeff.	t-Stat.	Prob.	Coeff.	t-Stat.	Prob.
<i>Short run</i>									
D(TEX)	-4.229	-0.54	0.60						
D(TEX(-1))	18.97	2.22	0.03						
D(TEX(-2))	37.46	4.44	0.00						
D(TEX(-3))	30.73	3.90	0.00						
D(CEX)				-12.95	-2.39	0.02			
D(CEX(-1))				-3.205	-0.63	0.53			
D(CEX(-2))				8.331	1.78	0.09			
D(CEX(-3))				17.93	3.93	0.00			
D(REX)							0.189	0.03	0.98
D(REX(-1))							30.25	3.51	0.00
D(REX(-2))							36.52	4.01	0.00
D(REX(-3))							13.28	1.56	0.13
D(LMOS)	38.51	5.75	0.00	26.59	5.13	0.00			
D(TOPEN)	-0.062	-0.27	0.79						
D(POP)	-57.82	-6.24	0.00	-51.29	-2.17	0.04	-32.82	-4.74	0.00
D(POP(-1))				10.97	0.28	0.78			
D(POP(-2))				-1.138	-0.03	0.98			
D(POP(-3))				-48.36	-1.78	0.09			
ECM _{t-1}	-0.56	-6.27	0.00	-0.483	-5.85	0.00	-0.527	-4.69	0.00
<i>Long run</i>									
TEX	-50.61	-2.61	0.01						
CEX				-56.12	-2.79	0.01			
REX							-49.51	-1.78	0.04
LMOS	77.02	2.99	0.01	67.15	2.52	0.02	55.87	1.90	0.07
TOPEN	-0.912	-1.07	0.29	0.518	0.78	0.44	0.032	0.05	0.96
POP	0.407	0.59	0.56	2.807	2.28	0.03	0.864	1.33	0.19
C	98.96	2.39	0.02	76.38	1.90	0.07	-14.39	-0.30	0.77
Adj. R-sq.	0.480			0.505			0.363		
				1.799			1.528		

The lower section of the results in Table 8 reveals the effects of public expenditure factors on inflationary pressure in Nigeria. From the results, the coefficients of all the expenditure variables are significant at either the 1 or 5 percent level of significance. Each of the coefficients is also

negative, indicating that expenditure patterns of any form have negative effect on inflation in Nigeria. Thus, unlike the main positive effects in the short run, sustained increases in public expenditure, either capital or recurrent will deliver negative effects on inflation in the long run. Thus,

long run price increases can be curbed by current expansion in public expenditure in Nigeria. The coefficient of money supply also passes the significance test in the long run estimates and it is positive. This shows that, in line with theoretical postulations, increase in money supply will lead to inflationary pressure in the long run in Nigeria.

4.4 Post Estimation Tests

Post estimation tests; Normality, serial correlation and multicollinearity tests are conducted to verify the robustness of the estimates.

4.4.1 Multicollinearity Tests

Table 9: Post Estimation Test Results

Variable	TEX	CEX	REX
TEX	2.233		
CEX		3.044	
REX			1.560
LMOS	3.253	3.791	2.933
TOPEN	2.662	3.102	2.400
POP	3.457	4.029	3.117

4.4.2 Tests for Stability of Regression

The tests for stability is carried out through observation of residuals from the estimates in terms of serial correlation and normality. The J-B procedure is used to determine stability of estimates. The serial correlation tests are performed using the LM statistics. From the results, none of the J-B and LM statistics passed the significance test even at the 5 percent level

which implies that the null hypothesis is accepted in both cases. The null hypothesis is the absence of non-normality and serial correlation respectively. Thus, the tests indicate that the residuals are normally distributed and are devoid of serial correlation. Thus, each of the estimated equations can be adjudged to be stable and effective for long term prediction and analysis.

Table 10: Post estimation test results for serial correlation and normality

Model	Test	Stat. (prob)
UNE	Normality test (J-B)	0.73 (0.47)
	Serial Correlation LM Test	1.2 (0.24)
INF	Normality test (J-B)	0.32 (0.67)
	Serial Correlation LM Test	1.12 (0.78)

Note: p-values in parentheses. Source: Author's computation

A visual test of the stability of the estimates is also conducted using the CUSUM of squares tests. This helps to eliminate doubt about possible outlier regression for any of the groups in the sample. The charts in Figures 1 and 2 show the result of the CUSUM of squares test for recursiveness of error accumulation for the two categories that were

performed in the study. It can be seen that the CUSUM of squares line lies entirely within the dotted 5 percent significance bound line throughout the chart for each of the charts. This reveals that the estimations are all stable within the analysis and there are no issues of structural breaks or outlier effects in the estimations.

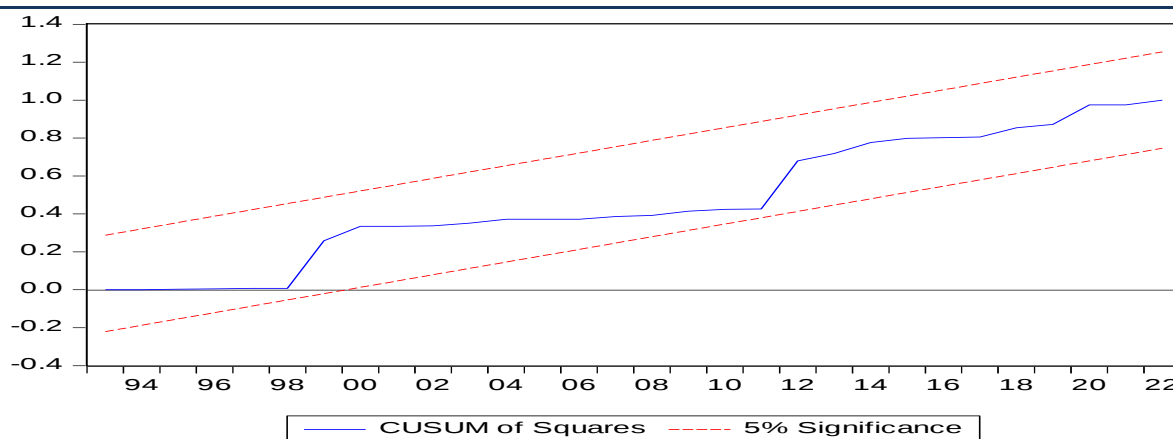


Fig: CUSUM for UNEMPLOYMENT

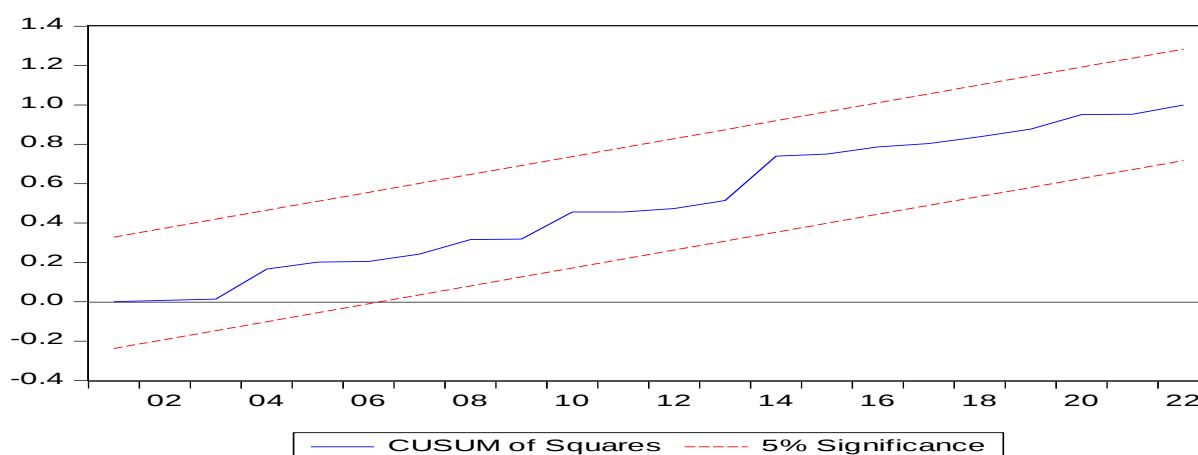


Fig. 4.11: CUSUM for INFLATION

4.5 Tests of Hypotheses

Hypothesis Two: There is no significant effect of capital expenditure, recurrent expenditure and total expenditure on inflation in Nigeria

In order to test this hypothesis, the focus is on the coefficients of TEX, CVEX and REX in the long run estimates in Table 4.8. In the results, the coefficient of TEX is 50.61 ($p < 0.05$), the coefficient of CEX is -56.16 ($p > 0.05$) and that of REX is -49.51 ($p < 0.05$). In this case the coefficients of all the variables pass the significance test at the 5 percent level. Based on this outcome, the null hypothesis is rejected, indicating that there is actually a significant negative long run effect of capital expenditure, recurrent expenditure and total expenditure on inflation in Nigeria.

Hypothesis Three: There is no significant effect of capital expenditure, recurrent expenditure and total expenditure on unemployment in Nigeria

The test of the third hypothesis is based on the estimates for TEX, CEX and REX in the long run results in Table 4.7. In the result, the coefficient of TEX is -26.58 ($p < 0.05$), the coefficient of CEX is

-20.96 ($p < 0.05$) and that of REX is -2.30 ($p > 0.05$). In the results, the coefficients of TEX and CEX both pass the significance test at the 5 percent level, while the coefficient of REX failed the test. Thus, the null hypothesis is rejected for TEX and CEX but it is accepted for REX. This implies that Capital expenditure and total expenditure significantly lead to reduction in unemployment in Nigeria. However, recurrent expenditure has no significant effect on unemployment in Nigeria

5.1 CONCLUSION

Public expenditure is the channel used to spur economic growth and social welfare in most developing countries. In this study, the impact of public expenditure on social welfare in Nigeria was examined.. In the study, Social welfare was measured in terms of unemployment as well as overall macroeconomic stability factors like inflation. In all two social welfare factors were examined in the study. Public expenditure was considered in terms of capital versus recurrent segments, while total expenditure was also included for robustness.

The dynamic flows in standard of living factors implies that a dynamic structure was devised for the analysis and the ARDL estimation framework was adopted for the empirical analysis.. From the analytical framework, both the long run and short run impacts of public expenditure on social welfare were obtained, although the focus was on the more stable long run estimates. In general, the results from the study confirmed public expenditure can help to drive social welfare in Nigeria. In particular, the following conclusions were made from the study:

1. That there is actually a significant negative long run effect of capital expenditure, recurrent expenditure and total expenditure on inflation in Nigeria.
2. that Capital expenditure and total expenditure significantly lead to reduction in unemployment in Nigeria. However, recurrent expenditure has no significant effect on unemployment in Nigeria
3. That the long run effects of public expenditure on social welfare of citizens in Nigeria are generally different from the long run effects.

5.2 RECOMMENDATIONS

The following recommendations are made based on the findings from the study:

1. The study has also shown that all only the capital component of public expenditure significantly helps to reduce unemployment in Nigeria. Thus, the low allocation to capital expenditure needs to be halted in the country. More focus needs to be on expanding public productive and investment capital accumulation that will help to sustain individual and public job growth and development in Nigeria.
2. There is however evidence from the study that all the components of public expenditure help to limit inflationary pressure in the long run. This implies that sustained spending by government will boost aggregate production to a level that price stability will be attained in the long run. Hence, government spending needs to be strategic in Nigeria, with focus on addressing long-term price stability.
3. Finally, there is need to boost the macro economy in order to improve on the absorption capacity as well as the productive base of the economy. If the absorption capacity in the economy is boosted, then public spending can have more multiplier effects on the social welfare of citizens in the long run

5.3 IMPLICATIONS OF THE STUDY TO THEORY AND PRACTISE

Public expenditure forms the basis for overall aggregate expenditure drive in many developing countries, including Nigeria. This is the reason for continued empirical interest on the roles of financing and spending patterns on the economy. More importantly, improving the welfare of citizens involves coordination of all aspects of the economy, including the private and public sectors both in terms of investment and decision-making. In this study, the role of public spending in the drive for improved social welfare of citizens in Nigeria was examined. There is evidence that focus on increasing public spending can boost the fight against unemployment and inflation thereby improving social welfare of citizens in Nigeria. This finding is relevant to policy makers in government as it could boost public expenditure profile of government by directing efforts to areas that will improve citizens' welfare. Secondly, the study is relevant to captains of industries as it is not only government that drives citizens' welfare. Increased production activities will generate employment and availability of goods and services will lower the inflationary trend based on the forces of demand and supply. Theoretically, the study align with the Keynesian economic theory which highlights the need for government intervention to improve the growth of the economy which encompasses citizens welfare

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Source of support: Nil; **Conflict of interest:** Nil.

Cite this article as:

Umobong, A.A. and Ebiowei, A.T. "Public Sector Spending and Social Welfare: Evidence from Nigeria." *Sarcouncil Journal of Education and Sociology* 4.3 (2025): pp 66-82.