Effect of Taxation and Public Expenditure on Employment Generation in Nigeria

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Abstract
This study investigates the effectiveness of taxation and public expenditure in influencing employment generation in Nigeria from 1981 to 2022. The model was built on Keynesian fiscal policy framework using multiple regression analysis method. Given the order of integration, the Johansen Co-integration procedure and Error Correction Model (ECM) were applied. It was found that unemployment was negatively affected by petroleum profits tax, while non-oil taxes, capital expenditure and recurrent expenditure had positive effects on unemployment with the petroleum profits tax and capital expenditure having the most significant effects. The study recommends that government should transparently and judiciously account for the revenue generated through taxes by investing in the provision of infrastructure and public goods and services. The policy implication is that the more effectively and efficiently tax revenue is utilized by Government to support economic activities and sectorial productivity growth, employment opportunities will be created and the taxpayers will be willing to pay tax.

Keywords: Employment generation, Fiscal policy, Public expenditure, Public goods and services, Taxation, Nigeria

Introduction
Taxes are unrequited benefits provided by government that are not normally in proportion to their payments (Organization for Economic Cooperation and Development [OECD], 2020). The objectives of a tax system as listed by the National Tax Policy (2017) of Nigeria are to promote fiscal responsibility and accountability; to facilitate economic development and growth; to provide the government with stable resources for the provision of public goods and services; to address inequalities in income distribution; to provide economic stabilization; to pursue fairness and equity, and to correct market failures or imperfections. Public expenditures on the other hand, are bills and payments which government pays in order to sustain its activities and achieve its goals and objectives. Public expenditure provides public goods and services which market systems generally do not offer because of inadequate return. Private sector organizations and individuals are reluctant to invest in them because consumers may use them without paying, hence, government spending is needed to boost economic output and promote growth (Odili, Ikwuagwa & Ariwa, 2023; Adeole, Abraham & Sunday, 2021). Taxation and public expenditure are therefore veritable tools used for national development and their policies can influence and stimulate economic growth; create employment and lower inflation in the economy. Unemployment refers

to the share of the labour force that is without work but available for and seeking employment. Unemployment measures the human dimensions of economic fluctuations in an economy, particularly recession. People, not just output suffer in recessions. When output decline, jobs are eliminated (Deepti & Deepak, 2020). Taxation and public expenditure are therefore interacting either positively or negatively to affect employment generation. Government sometimes uses budgetary actions to stimulate the economy. Such countercyclical fiscal policy consists of deliberate changes in government spending and tax collections designed to achieve full employment, control inflation and encourage economic growth (McConnell, Brue & Flynn, 2012). Unemployment rate appears to be on the increase in Nigeria. Unemployment rate in Nigeria rose from 23.1 percent in Q3, 2018 to 27.1 percent in Q2 2020, while the underemployment rate increased from 20.1 percent to hit 28.6 percent (Central Bank of Nigeria [CBN], 2021). A combination of both the unemployment and underemployment rate for the reference period gave a figure of 55.7 percent. This showed that 27.1 percent of the labour force in Nigeria or 21,764,617 persons either did nothing or worked for less than 20 hours a week, making them underemployed (National Bureau of Statistics [NBS], 2020). The unemployment rate among rural dwellers was 28 percent up from 23.9 percent in Q3 2018 while urban dwellers reported a rate of 25.4 percent up from 21.2 percent. In the case of underemployment among rural dwellers, it rose to 31.5 percent from 22.8 percent while the rate among urban dwellers rose to 23.2 percent from 13.7 percent in Q3 2018 (NBS, 2020).

One important fiscal policy measure that influences employment is taxation. Taxation is, by and large, the most important source of government revenue used in sustaining employment globally. According to Ortiz-Ospina and Roser (2016), total tax revenues account for more than 80 percent of total government revenue in about half of the countries in the world, and more than 50 percent in almost every country. Zouhar, Jellema, Lustig and Trabelsi (2021) confirmed that government spending has expanded globally, increasing from 29 percent of GDP in 2000 to 33 percent in 2019. Nevertheless, in advanced economies government spending has hovered just below 40 percent of GDP, while in emerging and low-income economies, government spending has by contrast risen to 34 and 27 percent of GDP, respectively, driven up by higher wage bill, social benefits, and reduced capital investment projects creating opportunities for economic activities, low output and high rate of unemployment. The obvious consequences of the high unemployment rate in Nigeria include fall in aggregate demand and supply, continued dependence on imports, fall in household income, increase in crime rate and disincentive to get a formal education (Price Waterhouse Coopers Nigeria [PwC], 2020).

The federal government of Nigeria projected ₦8.12trillion as aggregate revenue in 2021 financial year, while its actual performance was ₦6.10trillion. Of this, oil revenue was ₦997.8billion; representing 49.6 percent performance of the projected figure of ₦2,011.69 billion, while non-oil taxes revenue was ₦1.79trillion; representing 120.4 percent performance of the projected amount of ₦1.487trillion. Total actual aggregate public expenditure for 2021 financial year was ₦13.04trillion; representing 89.5 percent performance as against the budget figures of ₦14.57trillion. Actual recurrent expenditure was ₦9.15trillion while the actual capital expenditure of ₦3.39trillion was less than the budget by 31.9 percent (Budget Office of the Federation, 2022). High inflation rates worsen poverty, depress economic activity and dampen growth, while the current levels of unemployment and underemployment are both a cause and a consequence of corruption, conflict, insecurity and instability in Nigeria (Odili & Onyele, 2024).

Major researches have been carried out separately on the effects of either taxation or public expenditures on economic growth (Odili *et al.*, 2023; Salyha, Shabbir & Sabiha, 2022; Onwuka, 2021; Pibowei & Marei, 2021; Maduku & Mazorodze, 2021; Ekong, Okon & Effiong, 2019; Odili, Ezeudu & Nnwadike, 2019; Ordu & Nkwoji, 2019; Dikeogu & Karma, 2018) and their results were conflicting. None of the studies reviewed, to the researchers best of knowledge, have been carried out jointly to ascertain their effects on employment generation in Nigeria. To assess how, and to what extent taxation and public expenditure affect employment generation, this study identified petroleum profits tax, non-oil taxes, capital expenditure and recurrent expenditure as key levers to Nigeria's fiscal stability. How do these key levers affect and contribute to employment creation? How do you manage these key levers to achieve full output, stable prices and full employment? How do you minimize economic distortions or shocks emanating from these key levers? How do you identify appropriate and suitable mix of taxation and public expenditures that will address and adjust their effects on employment rate? These are pertinent questions that this research seeks to address. Effects of taxation and public expenditure on employment generation in Nigeria is aimed at resolving these issues by providing policy framework that has the potential of stemming down the rate of unemployment in Nigeria.

Conceptual Framework

Taxation and public expenditure are fiscal policy tools which are used to influence the direction of the economy as presented in figure 1.

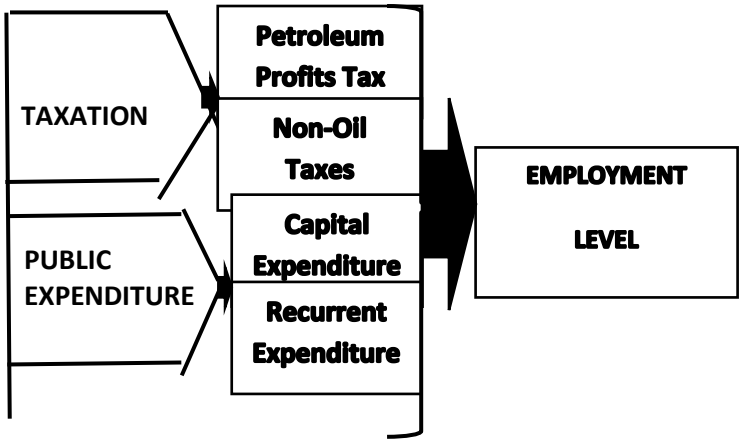

Figure 1: Taxation and Public Expenditure Interaction with Employment
Source: Authors, 2024

The identified key levers of petroleum profits tax, non-oil taxes, capital expenditure and recurrent expenditure interact to influence economic activities leading to an increase or a decrease in output which impacts on the employment generation. According to Mpofu (2021), taxation is a fundamental tool for revenue generation, economy building and sustainability, reducing market externalities, regulating trade, stimulating representation and achieving tax justice as well as building state accountability and responsiveness. Taxes are known to affect employment, and empirical studies found that taxes have important implications for GDP growth (Abdel-Kader & Mooij, 2022). According to Clements, Faircloth and Verhoeven (2021), the proper role of public expenditure is both as a tool of macroeconomic stabilization and as an instrument for the development of human capital and infrastructure. Taxation and public expenditure represent policy direction, intentment and action meant to appropriately influence aggregate economy in a country.

The use of taxation and public expenditure to adjust aggregate demand is the hallmark of fiscal policy. The objectives of fiscal policy are to increase aggregate demand, fight inflation, ensure full employment, and price stability. Fiscal policy is implemented through the instrumentality of budget to affect the economy through tax collection and disbursements for goods and services.

Theoretical Framework

This study is underpinned by Keynes (1936) theory that linked taxation and public expenditures to economic stability. The essence of the theory is that in times of recession, aggregate demand needs to be stimulated by government response. This, Keynes believed would reduce unemployment, increase output while controlling inflation. Keynes argued that changes in aggregate demand influence the business cycle, and Keynes define aggregate demand as the totality of consumer spending, investment, government spending and net exports. Keynesian theory urges increased government spending or tax cuts as mechanisms for increasing (shifting) aggregate demand (Odili *et al.,* 2023). Keynes proposed an active role for the government in the economy and identified the following fiscal policy tools as: discretionary and automatic stabilizers (also known as non-discretionary). Discretionary Fiscal Policy according to Tucker (2013) is deliberate use of changes in government spending or taxes to alter aggregate demand and stabilize the economy. Discretionary fiscal policy may either be expansionary or contractionary. The expansionary fiscal policy can be pursued by the government through tax cuts or government spending hikes or a combination of both. Contractionary fiscal policy can be by tax hikes or government spending cuts or a combination of both. Automatic stabilizers are tax revenue and public expenditures which automatically change levels in order to stabilize an economic expansion or contraction. These are policy instruments and tools enshrined and incorporated into the budget to assist in addressing unemployment and inflation issues, while the tax laws and government spending remain unchanged.

Empirical Literature Review

In the previous literature, Abubakar (2016) employed Structural Vector Auto-Regression (SVAR) method and examined dynamic effects of fiscal policy on output and unemployment in Nigeria from 1981 to 2015. The results showed shock in public expenditure as having a positive long-lasting effect on output. Revenue shock was found to exert a positive effect on output. The effect of revenue shock on unemployment was found to be negative but short-lived. Ubi-Abai and Bosco (2017) examined fiscal policy and macroeconomic stability in Nigeria from 1980 to 2013 using ordinary least square, co-integration and error correction technique. The study found that fiscal policies increased growth but its long run effects were ineffective. Fiscal policies have not affected inflation rates and they have encouraged large importations thereby creating deficits in its balance of payments.

Dikeogu and Karma (2018) in their study on fiscal policy examined its impact on macroeconomic performance in Nigeria from 1970 to 2017. The study adopted descriptive statistics analysis, ARDL, Engle-Granger co-integration and error correction modelling techniques for the analysis and found that a long run relationship exists among the variables and that CXP negatively impacted on EGR, and RXP, while the DUM variable had negative insignificant effect on EGR, and TGR has a positive impact on EGR. Ordu and Nkwoji (2019) examined impact of education tax on economic development in Nigeria from 2006 to 2017 using ordinary least square multiple regression analysis and correlations coefficient. The findings indicated that education tax revenue has a significant impact on economic development and thus indicates that education tax revenue

is crucial aspect of government funding needed for economic developmental purposes. Education tax has positive and strong relationship with economic development.

Odili, Ezeudu and Nnwadike (2019) investigated the impact of fiscal and monetary policies on the Nigerian economy from 1981 to 2018. The study revealed that monetary policy rate and government expenditure impacted positively on the real GDP, while government tax revenue and money supply impacted negatively on real GDP. Monetary policy instruments were not significant, while fiscal police instruments were statistically significant in the long run in influencing the Nigerian economy. Monetary and fiscal policies measures, however jointly impacted significantly on the economy of Nigeria in the long-run. Maduku and Mazorodze (2021) evaluated government expenditure and macroeconomic stability conundrum in Zimbabwe from 1981 to 2019 using ADF Unit root, co-integrated Vector Error Correction Model (VECM) and Granger causality. The study did not find a statistically significant relationship between government expenditure and macroeconomic stability as argued mostly by the Keynesians. The relationship turned out to be rightly negative. Granger causality tests were also conducted where no causality was found from government spending to macroeconomic stability, and vice versa.

Pibowei and Marei (2021) adopted interval scale of measurement and proceeding year basis of sampling, with a sample size of nine (9) years from 2010 to 2018, using income tax on gas exploration as base year and investigated the impact of petroleum profits taxes on economic growth in Nigeria from 1981 to 2020. The study found that PPT has no significant relationship on PCI and that PPT has no significant relationship with JOB. The study concluded that, given high levels of oil prices and production boom, petroleum profit tax might not significantly contribute to per capita income and the employment rate for economic growth. Onwuka (2021) adopted Vector Autoregressive (VAR) model as the major statistical technique of analysis to evaluate the impact of fiscal and monetary policy on unemployment rate in Nigeria (1981-2020). The findings show that government expenditure and interest rate have negative and significant effect on unemployment rate. Government tax was found to be negative and insignificant. Money supply was found to have a positive and significant. By implication, the findings showed that government expenditure, money supply and interest rate are major determinants of unemployment rate in Nigeria since they were found to be statistically significant. The impulse response function of unemployment shows that unemployment rate that has a negative relationship with its past values from periods except in the first, 2nd, 3rd, 4th and 5th periods.

Salyha, Shabbir and Sabiha (2022) evaluated the impact of unemployment on economic growth in Pakistan from 1974 to 2020 with Autoregressive Distributed Lag (ARDL) Technique. The findings showed that unemployment and inflation rates both show a negative relationship with economic growth and are significant statistically. The population growth rate has a positive and statistically significant impact on economic growth. Short-run co-integration exists between the variables.

Odili, Ikwuagwu and Ariwa (2023) looked at the trends in public spending and analysed how the trends influenced Nigeria's economic development sustainability from 1980 to 2019. Employing a vector error correction model to analyze the data, the study found that expenditures on administration, and social and community services had negative and significant impact on sustainable economic development in the long-run and short-run; expenditures on education, and health had positive impact on sustainable economic development, but were only significant in the long-run; expenditure on economic services had positive and significant impact on sustainable economic development in the long run and short-run, while expenditure on transfers had positive and significant impact on sustainable economic development in the long-run but a negative and significant impact in the short-run. Similarly, Odili and Onyele (2024) provide information on how

oil price volatility and governance dynamics influences government expenditure in Nigeria by examining their trends using monthly data from 2015 to 2021. Volatility test was conducted using GARCH (1, 1). Due to mixed level integration of variables based on ADF approach to unit root testing, ARDL model was employed in estimating the variables. Volatility test showed that oil price was persistently volatile. Long-run estimates revealed that oil price volatility had negative and significant effect on government expenditure, while, its effect in the short-run was positive and significant. Governance indicators have instantaneous negative and significant effect on government expenditure in the short-run. In the long-run, however, voice accountability, government effectiveness and corruption control reduced government expenditure, while, political stability, regulatory quality and rule of law increased government expenditure. The data set provided evidence that crude oil price volatility and governance dynamics determined trends of government expenditure in Nigeria.

Methodology

Model Specification

This study followed the methodological approach of Abubakar (2016) that employed Structural Vector Auto-Regression (SVAR) method and examined dynamic effects of fiscal policy on output and unemployment in Nigeria from 1981 to 2015. The model was however, modified due to differences in time frame, preliminary test output, and also to capture variables this study considered imperative in explaining the inter-relatedness of taxation, public expenditure and employment generation in Nigeria. Unemployment rate which represents employment generation was modelled as a function of taxation and public expenditure variables as presented in equation

1. Unemployment Rate= f (*Taxation* + Public Expenditure) + μ ----------Eqn.1
= f (*Petroleum Profits Tax-PPT, Non-Oil Taxes-NOT, Capital Expenditure-KEX, Recurrent Expenditure-REX)* +μ
= f (*PPT, NOT, KEX, REX*) + μ

The model hypothesizes a steady operation that links unemployment to the contributions of petroleum profits tax, non-oil taxes, capital expenditure and recurrent expenditure.
The econometric form of the model is stated in equation

2. UNE = $\beta_0 + \beta_1 PPT + \beta_2 NOT + \beta_3 KEX + \beta_4 REX + \mu$ ----------Eqn.2

Transforming equation (2) to Error Correction Model (ECM) formula as stated by Ssekuma (2011), equation 3 is thus stated:

$$\Delta y_t = \gamma_0 \Delta x_t - (1 - \alpha_1)[\, y_{t-1} - \beta_0 - \beta_1 x_{t-1}\,] + \varepsilon_t$$ ----------Eqn.3

Where: UNE = Unemployment rate, PPT = Petroleum profits tax, NOT = Non-oil taxes, KEX = Capital expenditure, REX = Recurrent expenditure.
β_0 = Intercept, β_1 *to* β_4 = Parameter estimate for the explanatory variables, μ = Error term (Stochastic term).

Data Sources and Description of Variables

Data for this study were collected from secondary sources from 1981 to 2022. The source for each variable is presented in table 1. Multiple regression analysis based on Autoregressive Distributed Lag (ARDL) bounds test model with relative diagnostic tests and Pairwise-Granger causality test were adopted in this study to estimate and analyze the variables. The variables used in the analysis and the sources of data are presented in table 1.

Table1 – Description, measurement, expected signs, and sources of data

Description	Measurement	a priori signs	Source
Unemployment Rate (UNE)	Unemployment rate is the number of unemployed people as a percentage of the labour force where the latter consists of the unemployed plus those in paid or self-employment. In measuring unemployment rate, the total population is divided into labour force (currently active) and non-labour force (not currently active). Unemployment rate is calculated by dividing the number of unemployed persons by labour force i.e. Unemployment Rate = 100 x Unemployed Population / Labour Force Population.		CBN Statistical Bulletin
Petroleum Profits Tax (PPT)	Petroleum profits tax is a tax imposed on the profits of companies engaged in petroleum operations arising from petroleum oil mining lease, oil prospecting licence or exploration activities in Nigeria. The computation of PPT payable is in accordance with Parts III and IV of the Petroleum Profits Tax Act, Cap P13 LFN 2004 (as amended).	+	Federal Inland Revenue Service (FIRS) Tax Statistics
Non-Oil Taxes (NOT)	Non-oil taxes are taxes other than petroleum profits tax collectible by federal government as indicated and listed in taxes and levies (Approved List for Collection) Act. These taxes include: Companies income tax; Withholding tax on limited liability companies, residents of FCT, Abuja and non-resident individuals; value added tax; Tertiary education tax; Capital gains Tax on limited liability companies, residents of FCT, Abuja and Non-resident individuals; Stamp Duties on limited liability companies and residents of FCT, Abuja; Personal Income Tax for members of Armed Forces of the Federation, Police Force, Residents of FCT Abuja and Staff of Federal Ministry of Foreign Affairs and Non-resident individuals.	+	Federal Inland Revenue Service (FIRS) Tax Statistics
Capital Expenditure (KEX)	Capital expenditures represent investments and development expenses that increase the infrastructural and production capacity of the economy.	+	National Bureau of Statistics (NBS)
Recurrent Expenditure (REX)	These are expenses that are incurred during a fiscal year on administration and other activities of the government. They include personnel costs such as salaries and wages, stationaries and consumables.	+	National Bureau of Statistics (NBS)

Source: Authors' 2024

Result of the Findings

Descriptive Analysis

The summary of the descriptive statistic is presented in Table 2.

Table 2: Descriptive Statistic

	UNE	PPT	NOT	KEX	REX
Mean	12.19024	72599.95	69589.40	578.1507	1706.091
Median	11.90000	4811.000	4126.700	321.3800	579.3000
Maximum	33.30000	683484.9	523970.1	3603.680	8121.640
Minimum	1.800000	1157.810	565.7000	4.100000	4.750000
Std. Dev.	9.147453	169114.6	142365.6	728.9999	2181.699
Skewness	0.705970	2.757023	2.333700	2.170986	1.281426
Kurtosis	2.428080	9.254363	7.279392	8.793316	3.729771
Jarque-Bera	3.964477	118.7663	68.50045	89.54269	12.13049
Probability	0.137761	0.000000	0.000000	0.000000	0.002322
Observations	42	42	42	42	42

Source: Authors' 2024

The mean and the median values are close meaning that the series is not normally distributed. Similarly, the standard deviation which measured the dispersion of the series from the mean reveals that the mean value is sparingly dispersed. This re-affirms the possibility of the series exhibiting traits of abnormal distribution. The standard deviation for petroleum profits tax (PPT) was the most volatile in the series with a value of 169114.6 while unemployment (UNE) was the least volatile variable with a value of 9.147453. This is also confirmed by the skewness, as nearly all the skewness values were greater than the average threshold (0), this is an indication that the series are highly skewed positively and highly abnormal in distribution. Similarly, the Kurtosis value UNE of the series was less than the standard (normal) value of 3. This means that the distribution of UNE distribution is platykurtic (flat). From the ρ-value of the Jarque-Bera test, a test for normality; since all the ρ-values are lesser than the significant level of 5%, thus the null hypothesis that the series are normally distributed was rejected for all the variables except for UNE which emerged with the probability value of 0.137 > 0.05.

Unit Root Test

In testing for the unit root or stationarity of the variables, Augmented Dickey-Fuller (ADF) procedure was employed and the result is presented in table 3.

Table 3: Augmented Dickey-Fuller (ADF) Unit Root Test Results of Stationarity

Variable	Stationarity (Levels)	Stationarity (1st Difference)	Status
LNUNE	-2.0688536	-5.820068**	I(1)
LNPPT	-2.120487	-6.967996**	I(1)
LNNOT	-1.961708	-6.225682**	I(1)
LNKEX	-1.630319	-6.734122**	I(1)
LNREX	-0.115439	-8.399054**	I(1)

Source: Authors' 2024

Note: p-values of coefficients: ** p<0.05

The ADF statistics were generated with drift and trend at the maximum lag length of 9 (nine). From the result in table 3, the ADF indicated that the series is integrated at first difference i.e.

order one or 1(1) or (Δ = 1). This shows a prerequisite for the presence of long-run linear combination among them, and to avoid mistake of analysis of a long-run relationship in short-run analysis. Accordingly, the Johansen Co-integration test and Error Correction Mechanism (ECM) was applied (Pesaran, Smith, & Shin, 2001; Johansen & Juselius, 1990).

Optimal Lag Order Selection Criteria

The result of the Lag Order Selection Criteria is presented in Tables 4.

Tables 4: Lag Order Selection Criteria.

Lag	LogL	LR	FPE	AIC	SC	HQ
1	-85.89064	NA	0.000237*	5.836349*	6.913709*	6.219666*
2	-73.65053	18.03805	0.000491	6.507923	8.662641	7.274555
3	-58.81204	17.96239	0.000988	7.042739	10.27482	8.192688

Source: Authors' 2024

* Indicates lag order selected by the criterion; LR: sequential modified LR test statistic (each test at 5% level); FPE: Final prediction error; AIC: Akaike information criterion; SC: Schwarz information criterion HQ: Hannan- Quinn information criterion

Since the variables achieved stationarity at first differencing, it becomes imperative to test for co-integrated. Johansen co-integration trace and max-eigen tests were employed, and the results presented in Table 5.

Table 5: Johansen Co-integration Results

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.569235	68.41686	60.06141	0.0084
At most 1	0.377282	35.57137	40.17493	0.1348
At most 2	0.249719	17.09859	24.27596	0.3050
At most 3	0.139309	5.893607	12.32090	0.4491
At most 4	0.001098	0.042833	4.129906	0.8654
Hypothesized No. of CE(s)	**Eigenvalue**	**Max-Eigen Statistic**	**Critical Value**	**Prob.****
None *	0.569235	32.84549	30.43961	0.0246
At most 1	0.377282	18.47279	24.15921	0.2441
At most 2	0.249719	11.20498	17.79730	0.3668
At most 3	0.139309	5.850773	11.22480	0.3670
At most 4	0.001098	0.042833	4.129906	0.8654

Source: Authors' 2024

* denotes rejection of the null hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values

From the co-integration test result presented in Table 5, there exist the presence of one co-integrating equation among the variables hence indicating the presence of long-run relationship among the variables. The normalized co-integrating coefficients expressing the long-run relationship is presented in Table 6 and stated in equation 4.

Table 6: Normalized co-integrating coefficients (standard error in parentheses)

LNUNE	LNPPT	LNNOT	LNKEX	LNREX
1.000000	-0.649949 (0.45869)	0.346650 (0.47131)	1.548497 (0.60397)	-1.528428 (0.49258)

Source: Authors' 2024

$LNUNE = -0.649949LNPPT + 0.34665LNNOT + 1.548497LNKEK - 1.528428LNREX$..Eqn. (4)

The normalized co-integrating equation shows that LNPPT and LNREX both caused diminishing effects on LNUNE, implying that changes in petroleum profits tax and recurrent expenditure caused a downward trend in unemployment rate in Nigeria. On the other hand, LNNOT and LNKEX turned out with positive coefficients, meaning that an increase in non-oil taxes and capital expenditure caused unemployment rate to increase in the long-run.

Error Correction Model (ECM)

The result of the ECM is displayed in Table 7 denoted as ECM(-1) is negative and statistically significant, showing that an established long-run relationship can be attained. The speed of adjustment shows that about 15% of the short-run dynamics in LNUNE is corrected every year. The coefficient of determination (Adjusted R-squared) showed that, about 63% of the systematic changes in LNUNE are attributed to the combined effect of all the explanatory variables captured in the model, while the remaining 37% is due to the stochastic disturbance term. The F-statistic indicates that the explanatory variables are simultaneously significant when addressing issues relating to LNUNE.

Table 7: Error Correction Model (ECM)

	Coefficient	Std. Error	t-Statistic	Prob.
ECM(-1)	-0.156288	0.069640	-2.244140	0.0159**
D(LNUNE(-1))	-0.021409	0.006940	-3.085950	0.0016***
D(LNPPT(-1))	-0.727420	0.277650	-2.619890	0.0092***
D(LNNOT(-1))	0.095391	0.114910	0.830133	0.4124
D(LNKEX(-1))	0.272530	0.083560	3.261430	0.0006***
D(LNREX(-1))	0.110278	0.242547	0.454667	0.6523
C	0.069560	0.050790	1.369550	0.4382

R^2=0.712780; *AdjR*^{2}=0.636799; *F-stat*=11.66352; *Prob.*=0.000001; *DW*=1.994225

Source: Authors' 2024

Note: The asterisk ***and ** denote rejection of the null hypothesis at the 1% and 5% significance levels, respectively.

The coefficient D(LNUNE(-1)) was negative and statistically significant, implying that previous year's LNUNE exerts a diminishing effect on current year's LNUNE. This shows that all things being equal, there is a very high possibility that government tax collection and expenditures could be informed by previous unemployment rate. As such, previous year's LNUNE could influence current year's LNUNE. The coefficient D(LNPPT(-1)) turned out negative and significant, indicating that petroleum profits tax diminished unemployment rate in the short-run, meaning that any change in PPT would have an immediate effect on unemployment in Nigeria. This corroborates Pibowei and Marei (2021) who concluded that, given high levels of oil prices and production boom, petroleum profit tax might not significantly contribute to per capita income and the employment rate for economic growth, and Onwuka (2021) who revealed that government expenditure and interest rate has negative and significant effect on unemployment rate.

The D(LNNOT(-1)) coefficient was positive and insignificant, showing that an increase in non-oil taxes would bring about a slight increase in unemployment rate in the short-run. This is in line with Salyha, Shabbir and Sabiha (2022) who found that unemployment and inflation rates show negative relationship with economic growth and were significant statistically. Abubakar (2016) however, revealed that public expenditure has positive long- lasting effect on output and revenue

shocks were found to exert a positive effect on output. The two components of government expenditure used in the model turned out positive. Hence, it can be said that government expenditure has failed in controlling unemployment in Nigeria. The D(LNKEX(-1)) is the short-run coefficient of capital expenditure, while D(LNREX(-1)) represents the short-run coefficient of recurrent expenditure. Findings from this study are against that of (Onwuka, 2021) who found that government expenditure reduces unemployment, but it's in consonance with Maduku and Mazorodze (2021) found a statistically significant relationship between government expenditure and macroeconomic stability.

Impulse Response Function (IRF)

IRF investigates how the dependent variable responded to unexpected shocks in the independent variables. The solid blue lines are impulse responses as presented in Figure 2.

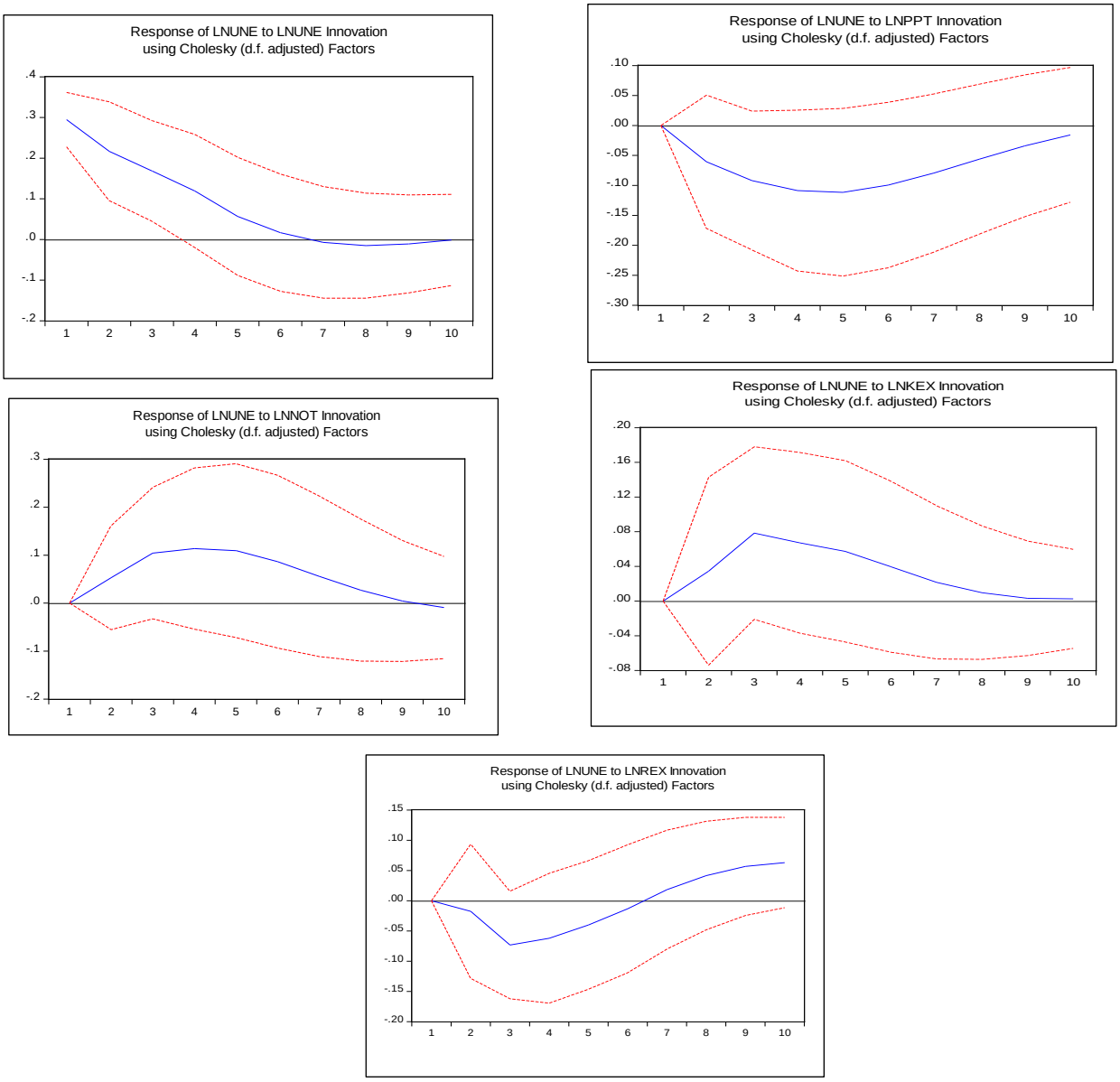

Figure 2: Impulse Response Function, *Source: Authors' 2024*

The figure shows that LNUNE responded negatively to its own shocks all through the time horizon, trending from the positive region to the negative region. Also, LNUNE response to shocks associated with LNPPT remained within the negative horizon throughout, declining from the first to fourth period and then it rose upward for the rest of the period. LNUNE responded positively to shocks associated with LNNOT from the first to third period but it began to fall from the fourth period reaching negative by the tenth period. Clearly, LNUNE responded positively to shocks in LNKEX during the first-three periods but it began to decline rapidly afterwards. The response of LNUNE to shocks in LNREX laid between the negative regions for the first-six periods and then persistently moved to the positive region between the seventh and tenth period.

Conclusion

This study investigated taxation, public expenditure and employment generation in Nigeria using simple Keynesian model. The research findings revealed that unemployment rate was affected by petroleum profits tax and capital expenditure. The findings also revealed that petroleum profits tax, non-oil axes, capital and recurrent expenditures collectively explained the changes in unemployment rate. Further investigation revealed that these effects followed a long-run path. Hence, it was concluded that taxation and public expenditure have varying effects on employment generation in Nigeria.

Recommendations

This study recommends that government should transparently and judiciously account for the revenue it generates through petroleum profits tax by allocating a greater percentage of its total expenditure to capital expenditure, while reducing the percentage allocation to recurrent expenditure and investing it in the provision of infrastructure and public goods and services to increase economic activities and generate employment. Federal Inland Revenue Service should strive to sustain an unflinching commitment towards improved non-oil taxes collection, while all capital projects awards should be designed to incorporate sustainable employment generation. This can be achieved by fine-tuning the current tax policies and procurement due processes in the light of unfolding business environment so as to capture more taxpayers into the tax net, harness new tax areas, ensure proper execution of projects and its maintenance which would in turn improve economic growth, generate employment and stabilize prices. It also recommended that recurrent expenditure of government should be reduced to cut down the cost of governance. Weighty steps that can be taken include merging of some public agencies that have similar functionalities and the review of the disproportionate emoluments given to political public officers to cut down the huge cost of governance among others with such funds channeled to productive ventures to stabilize the economy.

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