Effect Of Fiscal Policy On Unemployment In The Nigerian Economy

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ABSTRACT
The study examined the relationship between fiscal policy and unemployment rate in Nigeria for the period 1970 to 2013. Data for the study were sourced from the National Bureau of Statistics (NBS) and the Central Bank of Nigeria (CBN) Statistical Bulletin (various editions), and consists of Government Expenditure, Government Debt Stock (as proxy for Government borrowing), Government Tax Revenue and Unemployment rate. The data were tested for Stationarity using Augumented Dickey-Fuller (ADF) Unit Root test. The test revealed that all the variables used in the study are stationary at their first difference [i.e. 1(1)]. The data were also subjected to co-integration test in order to know whether using the variables together in the model would produce reliable results. The test revealed that a long run relationship between unemployment rate and fiscal policy tools used in the study which satisfy the condition for our fitting a parsimonious Error Correction Model (ECM) to the data. We found a negative relationship between fiscal policy tools (government expenditure and government debt stock) and unemployment rate in Nigeria while government tax revenue exhibited a positive relationship with unemployment rate. This means that increase in tax rate reduces employment in Nigeria. The results also reveal that, there exist a long-run equilibrium relationship between unemployment and fiscal policy in Nigeria. The study recommended that government should increase her capital expenditure mostly on infrastructure as this will help improve national income and create more employment in the economy. Borrowed funds by the government should be invested properly on capital and physical goods which will stimulate national incomes and create more jobs. Government should also intensify fight against corruption to mitigate diversion of government funds to private pockets. The study also recommends strong implementation of viable fiscal and monetary policy mix as well as diversify the nation's economic base in order to expand the employment base of the nation.
Keywords: Fiscal Policy, unemployment, Error Correction Model.

INTRODUCTION
Over the years unemployment has increased tremendously in Nigeria. It is a social and economic malady that has eaten deep into the Nigerian economy. The effect is very calamitous on the government and her citizens. It reduces the standard of living of members of the society. It has been evidenced that the insecurity, insurgency and terrorism ravaging the North East region of Nigeria as well as militancy, kidnapping, sea piracy and pipe line vandalism in the Niger Delta are as a result of the high rate of unemployment in the country. *Unemployment* refers to the condition and extent of joblessness within an economy, and is measured in terms of the *unemployment* rate, which is the number of *unemployed* persons who are willing and able to work divided by the total civilian labor force. Hence, unemployment is the condition of not having a job, often referred to as being "out of work", or unemployed. The terms unemployment and unemployed are sometimes used to refer to other inputs to production that are not being fully used, for example, unemployed capital goods.

The history of unemployment is the history of industrialization. It was not considered an issue in rural areas, despite the "disguised unemployment" of rural labourers having little to do, especially in conditions of overpopulation. The high unemployment rates currently experienced by many economies reflect both cyclical conditions and deep-rooted weaknesses in labour market institutions and fiscal policies (Cottarelli 2012). Unemployment has increased substantially since 2007, reflecting the weakening of economic activities in Nigeria. Unemployment negatively impacts on government's ability to generate income and also tends to reduce economic activity. When unemployment is high, it follows that fewer people are paying taxes to the government to help it function.

One of the goals of a modern government is to mitigate unemployment and make the environment conducive for investors to invest in other to create job and ensure price stability in the economy through effective and proper implementation of fiscal policies.

Fiscal policy is the government's management of the economy through the manipulation of its income and spending power to actualize some desired macroeconomic objectives amongst which are price stability, minimal unemployment rate and economic growth (Ozurumba, 2012).

Over the years, the Nigerian Government had adopted various fiscal policy measures to reduce the problem of unemployment, but still the problem has been on the increase. The present study is aimed at further examination of how fiscal policy can contribute in reducing unemployment in Nigeria. The paper is organized as follows. Section 1 is the introduction, while section 2 contains theoretical and empirical literature. Section 3 consists of methodology and model specification, while section 4 contains the discussion of results. Section 5 is the conclusion and recommendations.

2. THEORETICAL AND EMPIRICAL LITERATURE

Fiscal policy is best described as taxation and spending policies that the government pursues in an effort to influence the overall state of the economy. Reem (2009) defined fiscal policy as the means by which a government adjusts its level of spending in order to monitor and influence a nation's economy. According to him, fiscal policy is based on the theories of a British economist John Maynard Keynes whose theory basically states that governments can influence macroeconomic productivity levels by increasing or decreasing tax levels and public spending. This influence in turn, curbs inflation, increase employment and maintains a healthy value of money. Taxation is one of the primary fiscal policy tools the government has at its disposal to reduce unemployment. High taxes mean consumers have less disposable income, which results in less consumption. When consumers buy less, less revenue accrues to businesses making them less likely to hire new workers or may even result to laying off workers to reduce cost. Cutting taxes is a common practice which the government uses to induce economic growth and reduce unemployment. Tax cuts put more money into the hands of consumers, which can lead to increased revenue for business and expansion and hiring. Spending on government programmes is another way government can use to influence unemployment. For example, if the government funds new public works programmes, such as building infrastructure like roads or rail ways, it can create jobs that serve to reduce unemployment and increase disposable income and spending. If such programmes encourage overall economic growth, employment will be enhanced after the projects are completed.

Empirical studies carried out by researchers on the impact of fiscal policy on unemployment abound, some of which are examined below.

Anthanasios (2013) investigates the unemployment effects of fiscal policy in Greece based on the SVAR methodology. He found evidence that the unemployment and growth effects can be quite sizeable in case of cuts in government purchases and in particular government consumption and to a lesser extent government investment. Tax hikes reduce output and increase unemployment, in particular those leading to higher implicit direct and indirect tax rates. The impact effects of fiscal policy on output and unemployment are more sizeable when considering recent year developments. Both output and unemployment respond in a more persistent manner, compared to pre-crisis years.

Bassani and Duval (2006) explored the impact of fiscal policies and institutions on unemployment in the past decades. They estimated reduced-form unemployment equations using cross-country/time series data

for 21 OECD countries during 1982 – 2003. They found that high rate of taxation increases the rate of unemployment.

Fatas and Mihov (2001) and Burnside et al (2004) in their studies on United States found a positive impact of government expenditure shocks on employment.

Monacilli et al. (2010) estimated a VAR model to investigate the effect of fiscal policy on labour market variables in the United States. According to the study, increase in government spending of 1 percent of GDP generated output and unemployment multiplier around 1.3 and 0.6 respectively, indicating that each percentage point increase in GDP produces an increase in employment of about 1.3 million jobs. In addition, hour and employment also rise significantly in response to a government spending stock.

Umut (2015) investigated the effect of fiscal policy in Netherland, using VAR technique. The study revealed that fiscal shocks exert significant impact on GDP, Unemployment rate, Consumption and Investment. The work suggests that unemployment rises in response to a fiscal contraction whereas it falls to fiscal expansion.

Holden and Sparrman (2016) estimated the effect of government purchases on unemployment in 20 OECD countries, for the period 1980-2007. Their study revealed that an increase in government purchases equal to one percent of GDP reduces unemployment by about 0.3 percentage point in the same year. The effect is greater and more persistent under less "employment-friendly" labour market institutions, and greater and more persistent under a fixed exchange rate regime than under a floating regime. The effect is also greater in downturns than in booms. The effect on unemployment reflects a corresponding positive effect of increased government purchases on employment to population rate.

Samira and Khalil (2015) examined the government civil expenditures effect on unemployment rate in Iran from 1997-2013 period using the generalized ADF unit root test, Johansen cointegration test, (VAR) method and VEM. The long period relationship was analyzed and a negative and meaningful relation of total government civil expenditure on unemployment rate was established.

Nwosa (2014) examined the impact of government expenditure on unemployment and poverty rates in Nigeria for the period 1981 to 2011. Using an Ordinary Least square (OLS) estimation technique, the study established that government expenditure has positive and significant impact on unemployment rate while it has a negative and insignificant impact on poverty rate. The study recommended that urgent attention should be accorded to rising unemployment and high poverty rate.

Auerbach and Gorodnichenko (2012a) examined the relationship between government purchases and unemployment in Nigeria, using an error correction modeling technique. He found a significant negative relationship which means that an increase in government purchases leads to a reduction in unemployment rate.

Mehmood and Sadiq (2010) examined the relationship between government expenditure and unemployment rate in Pakistan for the period 1976 to 2010, using an error correction modeling technique. The study revealed that a negative relationship exists between government expenditure and unemployment rate in Pakistan.

3. METHODOLOGY

The model specification for this study follows the procedure adopted by Samira & Khalil (2015) and modified by us to suit our purpose. Thus

UNEMP = f(GEX, GDS, GTR) ……………………………………………. (1)

Or assuming a linear relation between the variables for simplicity, we can write the relationship in econometric format as

UNEMP = $B_0 + B_1$GEX + B_2GDS + B_3GTR + U ……………………..… (2)

Where

UNEMP = Unemployment rate

GEX = Government expenditure

GDS = Government debt stock

GTR = Government tax revenue

U   = White noise error term

The model is transformed into log-linear form, which is expressed as

$$logUNEMP = \beta_0 + \beta_1 logGEX + \beta_2 logGDS + \beta_3 logGTR + U \ldots\ldots\ldots\ldots\ldots\ldots(3)$$

Where Log = natural logarithm, and

U   = White noise error term

The apriori expectations are as follows

$\beta_0 > 0$, $\beta_1 < 0$, $\beta_2 > 0$, $\beta_3 > 0$

Where, β_0 = intercept, β_1 = coefficient of government expenditure, β_2 = coefficient of government debt stock and β_3 = coefficient of government tax revenue.

Data on Government Expenditure, Government Debt Stock (proxy for Government borrowing), Government Tax revenue and Unemployment rate covering the period 1970-2013 were sourced from the National Bureau of Statistics (NBS) and the Central Bank of Nigeria (CBN) Statistical Bulletin (various editions). The study employed various analytical methods including co-integration and Error Correction model (ECM) to analyze the data.

4: EMPIRICAL RESULTS

We begin our empirical analysis by showing the degree of association between unemployment (UNEMP) and fiscal policy tools - Government expenditure (GEX), Government debt stock (GDS) and Government tax revenue (GTR) through the multiple regression analysis.

Table 1 below depicts the result of the short run relationship between unemployment and fiscal policy tools.

Table 1: Short Run Result

Variable	Coefficient	Std. error	T- statistic	Pro.
C	1.840606	0.392956	4.688996	0.0000
LOG(GDS)	-0.079270	0.086897	-0.912234	0.3671
LOG(GTR)	-0.091536	0,084307	-1.083747	0.2841
LOG(GEX)	0.192751	0.117566	1.639518	0.1089
R^2= 0.064911; Adj R^2=-0.005221 ; F-Statistic= 0.92553, D. Watson= 0.864849				

Source: Computed Result (E-View 6)

The short run results reported above show that all the variables under consideration are insignificant at 5 percent level of significance. The R^2 value, Durbin Watson statistic and F- statistic are each not reasonable. This may be informed by the characteristics of time series data which are usually non-stationary at level and therefore spurious.

Therefore, given these results, it is necessary to test their reliability, that is, whether it is not spurious regression. This we did through the Augmented Dickey-Fuller (ADF) stationarity test.

Table 2: ADF Test Result.

Variable	Level	First Difference	Second Difference	Prob.	Integration order
GEX	1.896289	-5.267848	-	0.0001	1(1)
GTR	5.354139	-7.760143	-	0.0000	1(1)
GDS	-0.032366	-4.426369	-	0.0000	1(1)
UNEMP	-0.126784	-6.96651	-	0.0000	1(1)

Source: Computed Result (E-View 6)

Note: the 5% critical value for ADF statistic at level is approximately -2.931404 while -2.935001 and -2.936942 are for the first and second difference respectively.

Table 2 above shows that all the time series data that were used in the study are stationary at their first difference, that is they are integrated of order one, i.e. 1(1). Thus, given the fact that all the variables are 1(1), we need to know whether using them together in the model would yield reliable result through cointegration test.

Table 3: Johansen's Cointegration Test.

Hypothesized N0.of CE(s)	Eigenvalue	Trace Statistics	0.05 Critical value	Prob.
None	0.536684	79.41046	47.85613	0.0000
At Most 1	0.509991	47.09795	29.79707	0.0002
At Most 2	0.301668	17.13804	15.49471	0.0280
At Most 3	0,47807	2.057476	3.841466	0.1515

Source: Computed Result (E-View 6)

Table 3 above gives the result of the Johansen cointegration test. It shows that the value of trace statistic is more than the critical value at 5% in three of the four null hypotheses, which indicates three cointegrating vectors. Since the variables are cointegration, then there would be no loss of information (Olayinka 2009), implying that there exist a long run relationship between unemployment rate and fiscal policy tools used in this study which satisfy the condition for fitting in a parsimonious error correction model (ECM).

Table 4: Parsimonious ECM.

Variables	Coefficient	t-statistics	Prob.
C	0.033736	1.050838	0.3001
D(LOG(GEX(-1)))	-0.103698	-1.880153	0.0580
D(LOG(GTR(-1)))	0.027763	1.665819	0.1042
D(LOG(GDS(-1)))	-0.021612	-0.250715	0.8034
D(ECM(-1))	0.926685	22.64742	0.0000
R^2= 0.937051; R^2Adj.= 0.930246; F-Statistic = 137.6940; Dw = 1.795091			

Source : Computed Result (E-View 6)

The parsimonious result of the unemployment rate model reported in table 4 above indicates that government expenditure complies with our theoretical expectation by bearing negative sign still significant at 5 percent level. This implies that a 1percent increase in government expenditure will reduce unemployment by 0.068 percent, while a 1percent fall in government spending will stimulate unemployment by 0.068 percent. The result is consistent with the works of Holden and Sparrman (2014), Auerbech and Gorodrichenko (2012) and Mehmood and Sadiq (2010) who discovered a negative effect of government expenditure on unemployment

Government tax revenue complies with our expectation with a positive sign. It is also insignificant statistically at 5 percent level. This means that for every one percent increase in tax revenue, unemployment will increase by about 10 percent. Usually as government increases tax to get more revenue, citizens will opt for leisure, thereby increasing unemployment. It is assumed that the tax levied on individuals and corporate bodies are high in Nigeria.

The government debt stock has a negative relationship with unemployment rate. Indicating that as total debt stock increases unemployment will reduce. Usually as government borrows more funds to provide infrastructure that will stimulate investment, this in turn provides employment in the economy.

The R^2 value of 0.94 indicates that about 94 percent of the total variation in unemployment rate is explained by fiscal policy measures during the period of this study. This implies that fiscal policy has serious implication for employment creation in Nigeria. Also the Durbin Watson statistic of 1.79 shows that serial correlation is minimal, while the F-statistic of 137.69 shows that our model is statistically significant and can really explain the reason for the changes in the level of unemployment rate in Nigeria. Thus the coefficient of ECM(-1), that is, the degree of adjustment shows that about 93 percent of the difference between the actual and the long run, or disequilibrium value of unemployment (UNEMP) is eliminated or adjusted each period. Thus, the speed of adjustment from the short run disequilibrium to equilibrium in the present period is about 93 percent and it is statistically significant, which justifies the use of the error correction model in the study.

Furthermore, it is appropriate to know the direction of causality between fiscal policy tools and unemployment. The Granger causality test result shed light on this, by using the specification as obtained from the EVEIWS.

Table 5: Pairwise Granger Causality Test.

Null Hypothesis	obs	F-Statistic	Prob 5%	Decision	Direction
GEX does not Granger cause UNEMP	42	2.04551	0.1437	Reject	No Causality
UNEMP does not Granger cause GEX		10.8790	0.0002	Reject	Causality
GTR does not Granger cause UNEMP	42	1.73990	0.1896	Accept	No Causality
UNEMP does not Granger cause GTR		9.80571	0.0004	Reject	Causality
GDS does not Granger cause UNEMP	42	3.71218	0.0339	Reject	Causality
UNEMP does not Granger cause GDS		0.03906	0,9617	Accept	No Causality
GTR does not Granger cause UNEMP	42	43.2437	2.E-10	Accept	No Causality
UNEMP does not Granger cause GTR		10.6568	0.0002	Reject	Causality
GDS does not Granger cause GEX	42	0.43992	0.6538	Accept	No Causality
GEX does not Granger cause GDS		2.57348	0.0899	Accept	No Causality
GDS does not Granger cause GTR	42	4.66450	0.0156	Reject	Causality
GRE does not Granger cause GDS		2.51478	0.0946	Accept	No Causality

Source: Computed Result (E-Views 6)

In table 5 above, the result of the Granger causality between government expenditure (GEX) and unemployment (UNEMP) indicates that there is unidirectional causality from GEX to UNEMP. This means that GEX does not Granger cause, but it is UNEMP that Granger cause GEX. The second hypothesis test shows that there is a unidirectional causality between government tax revenue (GTR) and UNEMP. This implies that GTR does not Granger causes UNEMP, but it is UNEMP that Granger causes GTR. The Granger causality between government debt stock (GDS) and UNEMP also indicates a unidirectional causality. This also means that UNEMP does not Granger cause GDS, but it is GDS that Granger causes UNEMP. While for the causality between GEX and GTR we find a unidirectional causality, meaning that GEX Granger cause GTR and GTR does not Granger cause GEX. In the case of GEX and GDS there is an independent causality among them. This indicates that GEX does not Granger cause GDS so also GDS does not Granger cause GEX. Finally, the table shows that GDS Granger causes GTR while GTR does not Granger cause GDS.

5. CONCLUSION AND RECOMMENDATION
Our study revealed that a negative relationship exists between fiscal policy tools and unemployment rate in Nigeria. This indicates that an increase in government expenditure, as well as government debt stock lead to increases in employment in Nigeria. The Government tax revenue exhibited a positive relationship with unemployment, meaning that increase in tax rate reduces employment in Nigeria. The results also reveal that, there exist a long-run equilibrium relationship between unemployment and fiscal policy in Nigeria. We also discovered from our results that fiscal policy measures have serious implication on unemployment rate during the period of study.
Based on the results above, the following recommendations are hereby made.

- Government's expenditure profile should give preference to capital expenditure: Increased government expenditure on infrastructure will help improve national income and create employment.
- Borrowed funds by the government should be invested properly on capital and physical goods that will stimulate national incomes and create more jobs.
- Government should encourage investors by reducing tax rates on corporate and personal income tax.
- Government should intensify the fight against corruption: corruption has been a major social malady to the sustainable growth and development of the country. Eradicating corruption is one major way the country can improve her economic performance through fiscal policy in order to achieve rapid and sustainable development.
- Strong implementation of viable fiscal policy and monetary policy mix as well as diversifying the nation's economic base.
- Massive investment and expansion of the non-oil sectors of the economy, particularly in the manufacturing and agricultural subsectors which are sine-qua-non for expansion of the employment base of the Nigerian economy.

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