IMPACT OF FISCAL POLICY INSTRUMENTS ON UNEMPLOYMENT REDUCTION IN NIGERIA

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Abstract
This study seeks to analyze the impact of fiscal policy instruments on unemployment in Nigeria from 1986 to 2020. The paper employed annual time series data obtained from central bank of Nigeria (CBN) statistical bulletin. Unemployment was proxied by Unemployment Rate (UMP) while fiscal policy instruments include external debt (EXD), capital expenditure (CPE), recurrent expenditure (RCE) and tax revenue (TRV). Autoregressive Distributed Lag (ARDL) Model was employed to test the long and short run relationship between the study variables. The co-integration bound test result shows that the variables are co-integrated. The result reveals that external debt, recurrent expenditure, and tax revenue have statistically insignificant impact on unemployment in Nigeria but *capital expenditure was* significance. Based on the findings, we recommended *that since fiscal policy instruments alone cannot address the problem of unemployment, government should device and employ other measures such as; the use of monetary policy tools, establishment of a synergy between fiscal and monetary policies in Nigeria.*

Keywords: Fiscal Policy, Unemployment, ARDL

Introduction

Fiscal policy is one of the major windows used to curb unemployment; government all over the world had been using fiscal policy tools to regulate the economy since great depression. Fiscal policy can be seen as the manipulation of government expenditure and tax revenue to stabilize the economy. Nigerian government over the years has consciously implemented series of fiscal policy measures aimed at curtailing unemployment. Unfortunately, the problem still lingers.

According to the National Bureau of Statistics (2016), unemployment rate rose sharply from 3.9% in 1998 to 13.1% in 1999. This ugly upward spree continued till 2011 when unemployment peaked 23.9%. Although downward trend was observed in 2012, 2013 and 2014 as unemployment recorded 10.6%, 10% and 7.8% respectively, a sharp reversal was experienced in the following years as unemployment recorded 9.9% and 12.1% in 2015 and 2016 respectively (NBS, 2018). The report further shows that unemployment rose to 18.9% and 23.1% in 2017 and 2018 respectively. It also indicated that the number of people with the labour force who were in unemployment or underemployment increased from 13.6 million and 17.7 million respectively in the

second quarter of 2017, to 15.9 million and 18.0 million in the third quarter 2017. However, the latest increase in unemployment in Nigeria was cause by the COVID 19 pandemic to 33.3% translating to some 23.2 million people, the highest in the last 13 years and the second highest rate in the globe (NBS, 2020), thought government expenditure has increased significantly.

Despite government involvement towards reducing unemployment rate through huge government spending, it has not generated desired outcomes. Unemployment has been identified as one of the major problems facing the Nigerian economy where a large proportion of her citizens are poor. Evidence had shown that majority of the Nigerian population are living below the poverty line. Thus, Unemployment refers to the condition and extent of joblessness within an economy, and is measured in terms of the unemployment rate (Egbulonu & Amadi, 2016).

This study investigates the impact of fiscal policy instruments on unemployment in Nigeria. The novelty is that the study intends to disentangle the empirical relationship between fiscal policy instruments and unemployment. This would enable the study to determine employment response in Nigeria to government policy instruments. The paper seeks to empirically explore how interventionist policy through public revenue and spending that are growth oriented will enhance output growth and be able to create more jobs in Nigeria. However, the major point of divergence between this paper and previous similar studies such as; Odinakach et. al (2020), Udeze et. al (2020), Obayori (2016), Olukayode et al.,(2018) and Abubakar (2016) is that this paper incorporated external debt variable into it model and also extended the period to covered COVID 19 era of structural change of the economy.

Other sections of this paper are organized into four parts which include literature review on the relationship between fiscal policy and unemployment. The methodology is presented in the third section. Section four discusses the results while the last section concludes and proffers policy recommendation.

Literature Review

Theoretical framework

According to the Keynesian economist, fiscal policy is a key tool of economic management. The role of government is very crucial in maintaining the economy at the full employment. This is done by managing the level of aggregate demand until the economy is at full employment.

Therefore, an increase in government expenditure increases aggregate demand. A minimal reduction in personal income tax increases disposable income thereby increasing aggregate demand. Nevertheless, government expenditure is one of the components of aggregate demand. The equation is as shown below.

$Y=C+I+G+ (X-M)$…….. (1)

Where; Y = aggregate demand, C= consumption, I = investment, G= government expenditure, X=Export, M= Import and X-M = net export.

From equation (1) above, it follows that an expansionary and well-coordinated fiscal policy will help to create employment in the country. This is done by increase government expenditure in the country with an appropriate policy mix improvement in quality of government expenditure. To achieve full employment, government increase taxes on goods that are not locally produced as a means of increasing revenue.

Conversely, government gives tax concession to local entrepreneurs to encourage greater exports volume to pay for increased imports. Also, tax concession is a means of encouraging local production and employment creation and as well reducing the level of imports. Therefore, increased government expenditure stimulates greater export volume which will in turn translate to appreciation of a country's currency value. To this end, sustained fiscal deficits with consistent fiscal discipline will stabilize the economy both in the short and long run.

Furthermore, in the Keynesian theory, employment depends upon effective demand which results in increased output, output creates income and income provides employment. He regarded employment as a function of income. Effective demand is determined by aggregate supply and demand functions. The aggregate supply function depends on physical or technical conditions which do not change in the short run, thus it remains stable. Keynes (1934) concentrated on aggregate demand function to curb depression and unemployment. Thus, employment depends on aggregate demands which in turn are determined by consumption demand and investment demand. According to Keynes, employment can be increased by increasing consumption and or investment. Consumption depends on income and when income rises, savings rises. Consumption can be increased by raising the propensity to consume in order to increase income and employment but the psychology of the people such as taste and habit which are also constant in the short run. Therefore, the propensity to consume is stable. Employment thus depends on investment. Thus, to increase employment level, there must be increase in investment. Nevertheless, this study would systematically follow and be based on this theory.

Empirical Literature Review

This section deals with the empirical literature review it summarized the work of other scholars relating to this study. However, it stated with the work of Anthanasios (2013) which employed the SVAR methodology to examine the relationship between unemployment, growth and fiscal policy in Greece. Results from the study showed that effect of cuts in government purchases and consumption on unemployment and output to be sizable, while the effect of government investment is to a lesser extent. Tax hikes was found to reduce output and increase unemployment.

Benanaya, Khaled, Rachid and Badreddine (2014) employed the dynamic panel data analysis to examine the impact of fiscal policy on economic growth of MENA countries. Results of the study showed a long run relationship between fiscal policy and economic growth. Correlation pattern between GDP and budgetary revenue revealed the presence of positive causality between economic growth and fiscal revenues. Effects of taxation were difficult to isolate empirically.

Eze and Nwambeke (2015) examined the effects of deficit financing on unemployment rate in Nigeria. The study adopted the ex-post facto research design and the error correction
mechanism. The variables of the study are unemployment rate, deficit financing, interest rate, exchange rate, non-banking financing and non-banking public financing. The result revealed among others that deficit financing through banking sector source of financing and non-banking sector increased unemployment and thereby cause instability in the economy. The study recommended policies that are needed to achieve economic stability in Nigeria through reduction of the level of unemployment rate in Nigeria.

Osinwo (2015) examined the effect of fiscal policy on sectoral growth in Nigeria by

employing the ARDL and ECM methodology for the period 1970-2013. Results of the study found total fiscal expenditure to have a positive impact on output growth of all sectors with the exception of the agricultural sector.

Abubakar (2016a) carried out a disaggregate analysis of the impact of public spending on growth of Nigeria by employing the VECM methodology. Findings of the study showed public expenditure as having a mixed effect on economic growth. Some components of public expenditure exerted a negative effect, while other components had a positive impact on economic growth in Nigeria.

Abubakar (2016b) examined the effect of fiscal policy shocks on output and unemployment in Nigeria under the Keynesian framework by employing the structural vector auto regression (SVAR) methodology to analyze annual series on the relevant variables for the period 1981-2015. Johansen co-integration test confirms the presence of long run association among the variables. Findings of the SVAR model shows shock in public expenditure as having a positive long- lasting effect on output. Revenue shock was found to exert a positive effect (lower than that of public expenditure shock) on output. However, the effect of revenue shock on unemployment was found to be negative but short-lived.

Obayori (2016) investigated fiscal policy and unemployment in Nigeria from 1980 to 2013. The data was analyzed with the co-integration and ECM methods. The Johansen-Juselius co-integration employed in testing for long run equilibrium relationship among the variables indicated that long run relationship was found among the variables. The parsimonious ECM result reveals that the two independent variables (government capital and recurrent expenditure) have both negative and significant relationship with unemployment in Nigeria. The result also reveals a long run relationship between fiscal policy and unemployment, as depicted by both the sign and the statistical significant of the coefficient of the ECM. The study recommends amongst others that expansionary fiscal policy should be encouraged as it plays a vital role in the development process of an economy.

Olukayode and Olorunfemi (2018) the impact of fiscal policy instruments on employment generation in Nigeria within the periods of 1980-2015. The study used the Augmented Dickey Fuller test to estimate the stationarity level, Engel Granger co-integration test for long-run relationship and ordinary least square for long-run estimates. The findings showed that government spending and manufacturing output had negative impact on unemployment rate in Nigeria.

Odinakachi, Chris, Anayo and Eze (2020) examined the effect of fiscal policy on unemployment reduction in Sub Saharan Africa with emphasis on Ghana and Nigeria. Secondary data were used for the study. The research covered the period 1986 to 2017. The Johansen Co-integration test suggested a long run relationship exist between fiscal policy and unemployment reduction in both Nigeria and Ghana. To confirm the long run relationship, the Vector Error Correction model was adopted. The result of the Vector Error Correction Mechanism revealed that fiscal policy has no significant long run effect on unemployment reduction in Nigeria. Oil revenue has significant effect on unemployment reduction in Nigeria. Fiscal policy has a significant long run effect on unemployment reduction in Ghana. The result also revealed that capital expenditure and recurrent expenditure have significant effect on unemployment reduction in Ghana while tax revenue, oil revenue and deficit financing do not have significant effect on unemployment reduction in Ghana.

Udeze, Obi, Ezenekwe and Ukeje (2020) examined the impact of fiscal policy on urban unemployment in Nigeria. Using time series spanning from 1981 to 2018, the study estimated generalized linear model (GLM). The results obtained showed that capital expenditure and government revenue have significant negative impact on urban unemployment in Nigeria. Also, recurrent expenditure and fiscal deficit were found not to exert significant impact on urban unemployment within the period. However, public debt reinforces unemployment in urban centres in Nigeria. The study therefore, recommended that the Nigerian government reconsiders increased budgeting and releases of fund for capital expenditure while cutting its ever bulging personnel cost.

Methodology

The study utilized secondary data. Data on Unemployment rate, External Debt, Capital Expenditure, Recurrent Expenditure and Tax Revenue were obtained from central bank of Nigeria statistical bulleting for the year 1986 and 2020 the justification for the choice of period was motivated by the structural changes of the economy especially during COVID-19 pandemic era of lockdown and work at home.

Model Specification

This study adapts one econometric model in an attempt to establish the relationship between fiscal policy instruments and unemployment. The model was modified to capture the relationship between the dependent variable (unemployment and the independent variables (external debt, capital expenditure, recurrent expenditure and tax revenue) which follow the Keynesian model. Therefore, the functional and econometric models are expressed as follows:

UMP = f (EXD, CPE, RCE, TRV)……. (2)
Where:
UMP= Unemployment Rate
EXD= External Debt
CPE= Capital Expenditure
RCE= Recurrent Expenditure
TRV= Tax Revenue
F= Functional relationship

The model that finds both short-run and long run impacts of fiscal policy a tool on unemployment in Nigeria is as follows:

Where:
= Stochastic variable
= intercept
and = Stimulus coefficients that measuring percentage change in response.

Data Normality (Normality test)

The data for this study were tested for normality. The Jaque Bera test was used to determine the normality of data for the study. Decision rule guiding the test stipulates that if the Jargue Bera Statistic is greater than the probability value, we accept the null hypothesis and concludes that the error term is normally distributed in the model. Otherwise, we reject the null.

Unit Root Test

Typically, stationary stochastic process assumes that variance, mean, and autocorrelation are constant over time and is not affected by time movement. Non-stationary means a stochastic trend tends to carry out past movement and the mean will be varied or variance will be varied or vary in both of them upon the time invariant. Phillips Perron Unit root test was adopted for this work in an attempt to test for stationary in the time series data.

Autoregressive Distributed Lag (ARDL) Model

The ARDL employed in this study is expressed by further transforming the model in equation (3) as follows:

Where:
= Constant parameter
= First difference operator
, = vector of the parameter of the lag values of the independent variables
= Disturbance term
Σ= sigma.

The first part of the equation (4a) above with beta (correspond to the long run relationship while the term with sigma (Σ) represent the error correction dynamic.

Co-integration Test

The study employed autoregressive distributed lag model (ARDL) bounds testing procedure to test the long-run relationship between fiscal policy instruments and unemployment rate in Nigeria. The ARDL has several merits over other conventional techniques of co-integration such as Eagle and Granger (1987). Therefore, the autoregressive distributed lag model stated in (4a) is re stated below.

However, once co-integration relationship has been established the long run and short run parameters of the co-integration are then estimated. The long run co-integration relationship was estimated using the following equation:
…….(5)

Error Correction Mechanism (ECM)

In estimating the short-run relationship between fiscal policy instruments and unemployment, the speed of adjustment of the model to equilibrium therefore, the corresponding error correction equation were specified as express below:

Where:
ECM = error correction term of one period lag
= measures the speed of adjustment of the model's convergence to equilibrium.

Justification of the Method Used

Secondary data was chosen for this study because it is considered to be the most appropriate for the econometric model raised in the paper and estimated on the basis of short and long run autoregressive distributed lag model. The autoregressive distributed lag (ARDL) model is an ordinary least square (OLS) based model which is applicable for

both non-stationary time series as well as for times series with mixed order of integration. Also, the ECM integrates the short-run dynamics with the long-run equilibrium without losing long-run information and avoids problems such as spurious relationship resulting from non-stationary time series data.

Findings and Discussions

Unit root test result

The study carried out Phillips Perron unit root test to address the issue of spurious regression results usually associated with time series data and the result is presented in table 1.

Table 1: Phillip Perron Unit root result

Variables	PP-Statistics	Critical Value (1%)	Critical Value (5%)	Critical value (10%)	Order of Integration
UMP	-5.878699	-4.262735	-3.552973	-3.209642	I(1)
InEXD	-4.132010	-4.262735	-3.552973	-3.209642	I(1)
CPE	-8.666905	-4.262735	-3.552973	-3.209642	I(1)
InRCE	-4.293413	-3.639407	-2.951125	-2.614300	I(0)
TRV	-5.803116	-4.262735	-3.552973	-3.209642	I(1)

Source: Authors' Computation Using E-view, version 10

From the table1 above, the result of Phillips Perron test shows that majority of the variables are stationary at first difference I (1) while, only recurrent expenditure(RCE) that was found to be stationary at level I(0). However, the order of integration is a mix of I(0) and I(1) which formed the basis for the adoption of ARDL techniques. The technique can be used irrespective of order of integration. Furthermore, the study, using ARDL bounds test, would examine the long-run relationship otherwise known as co-integration among the dependent and independent variables.

ARDL Bound Test Result

The table 2 below mirror the ARDL bound test result

Table 2: ARDL Bound Test Result

Test Statistics	Values
K	
F- Statistics	7.668551
4	
Critical Values Bounds	
Significance	I(0) I(1)
10%	2.2 3.09
5%	2.56 3.49
1%	3.29 4.37

Source: Authors' Computation Using E-view, version 10

From the table 2 above, it can be seen that the value of F-statistic is greater than the critical values of both I(0) and I(1) bounds at 5%, this signifies that there is long-run relationship, otherwise called co-integration among the variables (unemployment and other independent variables). So, the null hypothesis which states that there is no co-integration among the variable is rejected and alternative hypothesis which states that there is co-integration among the variable is accepted. Therefore, there is existence of long run relationship between unemployment and fiscal policy instruments in Nigeria

Estimated Long run Results

The long run relationship between unemployment and fiscal policy instruments has been estimated employing ARDL techniques. The results are presented in table 3.

Table 3: Estimated Long-run and Diagnostic Test Result

	Dependent variable (UMP)		
Variables	coefficients	Standard error	T-stat(prob)
InEXD	0.738375	1.032699	0.714995
(0.4815)			
CPE	0.009894	0.003771	2.623449

(0.0149)		
InRCE	1.543348	1.197425
1.288889(0.2097)		
TRV	0.000283	0.000608
0.464855(0.6462)		

Diagnostic test

Test	F-statistics	Prob Value
Jarque-Bera		
Ramsey RESET	3.744122	0.0654
LM(Serial Correlation Test)	0.321888	0.5760
Breusch-Pagan-Godfrey	2.082953	0.0732
(Heteroskedasticity Test)		
CointEq(-1)	-0.609529	0.0000

Source: Authors' Computation Using E-view, version 10

From the result of the long run ARDL above as presented in table 3, the external debt, recurrent expenditure, tax revenue are statistically insignificant and positively related to unemployment. Capital expenditure that is found to be statistically significant and positively related to unemployment the results further, reveal that the null hypothesis of no co-integration between unemployment and external debt, recurrent expenditure, and tax revenue in Nigeria should be accepted as can be seen from the prob value i.e (0.4815), (0.2097), and (0.6462) this showed that no long run relationship exist between unemployment and external debt, recurrent expenditure, and tax revenue. On the contrary wise, capital expenditure reveals a positive and statistically significant related to unemployment which indicates that the hypothesis of no co-integration between unemployment and capital expenditure in Nigeria can be rejected and concludes that long run relationship exists between unemployment and capital expenditure. However, with the exception of capital expenditure in Nigeria a fiscal policy instrument through any of the selected instruments does not impact significantly on unemployment in the long run.

The conditions of ECM of less than one and negatively significance were met. ECM is-0.609529 and significant at 1% level of significance. Therefore, the speed of adjustment is 61% per annum.

The table further reveals the diagnostics test results to adequately justify the estimated ARDL model. The Jarque Bera, Ramsey RESET for functional form, LM for serial correlation and Breusch-Pagan- Godfrey for heteroscedasticity shows that the model passed all the post estimation tests employed in the study. That is no indication of serial correlation or autoregressive conditional heteroscedasticity.

Model Criteria and Goodness of fit

Table 4: Model Criteria/ Goodness of fit

Model Criteria/Goodness of fit	
Test	Value
R-Square	0.950326
Adjusted R-square	0.931698
F-statistics	51.01617
Prob(F-statistics)	0.000000
Durbin-Watson Statistics	2.145469

Source: Authors' Computation Using E-view, version 10

Table 4 above revealed the value of R-square and it's adjusted. The model is fit for predicting the effect of fiscal policy instruments on unemployment in Nigeria. The adjusted R-squared 0.931698 implying that 93% of total variations are caused by fiscal policy instruments used in the model, while the remaining 7% is caused by other variables not included in the model.

The F-statistic is statistically significant at 1% level of significance; this implies that all independent variables in the model are jointly significant in the explanation of unemployment. Whereas, the Durbin-Waston statistic is 2.1 as the value of Durbin-Waston statistic depicts absence of /serial correlation.

Discussion of Findings

This study analyzed the impact of fiscal policy instrument on unemployment in Nigeria from 1986 to 2020. Unit root test was conducted through Phillips Perron(PP) to test for the stationarity of the variables. The result of our unit root tests revealed a mixture of order of integration that is at level and first difference among the variables therefore, bound testing approach to cointegration with and an ARDL model became necessary and inescapable estimation techniques.

The ARDL bound test confirm that there is a long run relationship between unemployment and instruments of fiscal policy in Nigeria these instruments include external debt, capital expenditure, recurrent expenditure and tax revenue. This in line with the findings of Odinakachi et al., (2020) and Obayori (2016) which also established that there is a long run co-integration between unemployment and fiscal policy instruments in Nigeria. The estimated results shows that external debt, recurrent expenditure and tax revenue have positive but statistically insignificant long run relationship with unemployment this is again in line with the findings of Odinakachi et al., (2020) and contrary to the finding of Obayori (2016) and Olukayode et al., (2018). Therefore, capital expenditure was found to be positive but statistically significant long-run relationship with unemployment this finding contradicts the study by Obayori (2016) and Udeze et al., (2020) that found capital expenditure negative but statistically significant relationship with unemployment in Nigeria.

The findings of this study contradict the a priori expectation of the model though the relationship is insignificant with the exception of capital expenditure which reveals a positive and statistically significant with unemployment. The contradiction of the a priori expectation might be the theory was developed based on the experience of advance economy, nature of Nigerian environment and the economy. However, the findings also reveals that only capital expenditure among the variables transmit long run effect on unemployment in Nigeria, still the relationship contradict the a priori expectation this might be due to many factors which include inconsistency in government policy.

Conclusion and Policy Recommendations

This paper empirically analyzed the impact of fiscal policy instruments on unemployment in Nigeria. An econometric model was formulated to investigate the impact of fiscal policy and unemployment in Nigeria. Therefore, the stochastic characteristics of each set of time series data were analyzed by testing their normality distributions using Jarque-bera test and their stationarity using Phillips Perron (Test) interestingly, the variables were seen to be stationary at different order of integration. ARDL regression model was adopted as the appropriate econometric tool, the result of ARDL bound test estimates reveals that there is a long run relationship between fiscal policy instruments and unemployment in Nigeria. From the study findings showed that external debt, recurrent expenditure and tax revenue were insignificantly impact on unemployment in Nigeria but capital expenditure was found to be significantly impacted on unemployment in Nigeria.

From the findings, it shows that fiscal policy aloneis not significant and reliable on controlling unemployment in Nigeria. Nevertheless, government should device and employed other measures such as monetary policy tools and established a synergy between fiscal and monetary policy to address and curtail unemployment in Nigeria and government should avoid inconsistency in policy implementation by so doing a desirable results might be achieved.

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