



Macroeconomic policies and misery index in Nigeria

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Abstract

This study examined macroeconomic policies and misery index in Nigeria from 1981 to 2018. The macroeconomic policy variables considered in this study are government capital expenditure (GCEX), government recurrent expenditure (GREX) and government external debt (GEDT), money supply (MNSP), interest rate (INTR) and treasury bills (TRB). The study also introduced dummy variable to capture the effects of policy shift on misery index in Nigeria. Two major policy regimes was operated in Nigeria, direct and market based policies. Data was collected from central bank of Nigeria (CBN) statistical bulletin. This study adopted the ordinary least square (OLS) method of regression analysis. The study conducted the tests such as: R^2 , T-test, F-test, DW-tests, Philip Perron (PP) unit root test, Johansen cointegration test and error correction mechanism (ECM). From the results of the regression estimates it was revealed that: macroeconomic policy variables of government capital expenditure (GCEX), government recurrent expenditure (GREX) and government external debt (GEDT) supported the Keynesian theory. This means that increase in government capital expenditure (GCEX) and government recurrent expenditure (GREX) reduced misery index in Nigeria in the current period. It implies that rising external debt in current period worsened misery index in Nigeria. Also, money supply (MNSP), interest rate (INTR) and treasury bills (TRB) conformed to theory. This means that increase in money supply (MNSP) and treasury bills (TRB) and reduction in interest rate (INTR) could reduce misery index in Nigeria in the current period. The study recommended that: the government should sustain the recent expansionary fiscal policy actions and give more priority to capital expenditure than the recurrent expenditure component. This because it has the capacity of creating employment opportunities through building and construction works for the teeming Nigerian population. Hence, reducing the rate of unemployment and misery index in Nigeria. The Central Bank of Nigeria (CBN) should as a matter of urgency, reduce the rate of interest to a lower single digit to encourage investments, boost job creation and reduce economic misery in Nigeria. There should be gradual and steady increase in money supply. This will help to reduce interest rate, boost investment, create jobs and minimize economic misery in Nigeria.

Keywords: macroeconomic policies, misery index, inflation, unemployment, growth rate

Introduction

Macroeconomic policy intervention became prominent in economic analysis due to the failure of the classical model to provide solutions to the 'great depression' of the 1930s. This agitated the minds of economists and development experts. Among these great economic thinkers is Keynes (1936) ^[20], who provided a framework with which the deflationary gap could be eliminated. Using his analysis which was based on the shortrun, Keynes argued that the possibility of less than full employment cannot be remedied by the classical model of demand and supply analysis. Hence, he advocated for government intervention in the economy to reduce the menace of unemployment and deflation through stimulation of aggregate demand.

Iyeli (2005) ^[16] posits that macroeconomic policy is a mix of both fiscal and monetary policies which are intended to achieve macroeconomic objectives of full employment, price stability, economic growth, balance of payment equilibrium among others. Hence, the pursuit of macroeconomic objectives require the coordination of both fiscal and monetary policies. As a matter of fact, both fiscal and monetary policies are strongly linked to ensure adequate policy mix that favours the attainment of several objectives at the same time. The potency of both policy depends on policy mix. This is because fiscal policy has monetary implications and by extension, monetary policy cannot thrive in the absence of fiscal actions. Today, money supply

and government expenditure are both commonly accorded prominent roles in the pursuit of macroeconomic stabilization in developing countries but the relative importance of both has been a serious debate between the Keynesians and the Monetarists. The monetarists believe that money supply exerts greater impact on economic activities while the Keynesians believe that government expenditure rather than the money supply exert greater influence on economic activities. Given the fact that both money supply and government expenditure have great impact on economic growth, it is not surprising that they are intertwined (Ajisafe & Folorunso, 2002) ^[3]. Fiscal and monetary policies are inextricably linked in macroeconomic management. Development in one sector directly affect developments in others.

Macroeconomic policy plays crucial role in providing sustainable and credible economic stability in a country, thus creating the environment for fast economic growth. This task is primarily achieved through monetary and fiscal policies as its fundamental components. But, the necessary precondition for the successful functioning of an economy is the existence of coordinated activities of monetary and fiscal policies, since the absence of this coordination leads to a poor overall economic performance. Although these policies are conducted by two separate authorities, they are mutually dependent, and therefore, it is extremely important to accomplish a consistent and sustainable policy-mix

framework, within which monetary and fiscal policies will be harmonized, to avoid possible inconsistencies (Kvrgić, Čolić, & Vujović, 2011) [21]. While fiscal policy is mainly concerned with the public expenditures and revenues, monetary policy deals with the discretionary control of money supply. The essence of regulating and controlling the economy through these policies is to maximize the welfare of the citizens. To maximize the welfare of the people requires substantial reduction in economic misery.

According to Okun (1966), misery index is measured by the sum of inflation and unemployment rates for a particular economy. A higher level of inflation and unemployment was shown to have a negative impact on the welfare of the citizens. Okun (1966) noted that the misery index is a measure of economic distress due to the significant cost burden imposed on the citizenry by the negative economic conditions. In its original form, the index was computed as a combination of unemployment and inflation rates. As Mankiw (2010) [22] later explained, the index measures the level of economic discomfort as an unweighted sum of unemployment and inflation which constitutes two important indicators of macroeconomic policy outcomes. Unemployment and inflation as the key components of the misery index, remain critical problems of macroeconomic management in the country.

In Nigeria, inflation rates which remained moderated between 2006 and 2013 began to rise from 2014 to date. The records show that headline inflation rose from 8.0% in 2014 to 18.6% in 2016. Similarly, unemployment plus underemployment rate increased from 25.53% in 2014 to 33.6% in the third quarter of 2016 but fell slightly to 18.8% in third quarter of 2017 and rose to 23.1% in third quarter of 2018 (NBS, 2018). These negative developments have been exacerbated by the decline in GDP growth rates which turned negative within the first three quarters of 2016, suggesting that Nigeria is currently in stagflation; an economic condition characterized by declining growth, rising unemployment and rising inflation. This condition has implications for livelihood since inflation and unemployment growth are major factors that increase the level of misery. According to Hanke (2018) [13], Nigeria ranks 6th among the ten (10) top countries in the world in high misery with index score of 52.1. The major factor contributing to the country's misery is its high unemployment rate. In view of the foregoing, this study examines the relationship between macroeconomic policies and misery index in Nigeria.

It should be noted that macroeconomic policy is intended to achieve full employment level. Achievement of full or sustainable employment opportunities is a key dimension to wellbeing and human development. While acknowledging the inestimable importance of macroeconomic policies, it is however worrisome to note that over the past decades, there is little or no evidence of a meaningful impact of such macroeconomic policy on unemployment and inflation rates in Nigeria. Despite huge government expenditure occasioned by the implementation of expansionary fiscal policy which has often been accompanied by monetary expansion, there seems to be rising unemployment, inflation and slow growth of GDP. This scenario requires further investigation into the relationship between macroeconomic policies and the problems of unemployment, inflation and slow growth of GDP which are key indicators of misery index.

The empirical studies on this issue have produced inconclusive results (Holden and Sparrman, 2013) [14]. The issue is even more worrisome as there is paucity of empirical studies for Nigeria. Studies on macroeconomic policy (monetary and fiscal) focused on its impact on economic growth, unemployment and inflation nexus separately (Taiwo and Agbatogun, 2012; Bakare, 2012; Uma, Eboh and Nwaka, 2013; Onakoya and Somoye, 2013) [33, 6, 34, 31], while others focused on the impact of economic growth on unemployment and poverty (Ijaiya, Ijaiya, Bello and Ajayi, 2011; Sodipe and Ogunrinola, 2011; Oloyede, 2014) [15, 32, 30]. As a matter of fact, apart from Okonji and Igbunugo (2019) [28] who examined the role of macroeconomic performance in improving the wellbeing of the people using Hanke's misery index as a measure of wellbeing, there is no other known study in Nigeria that considered the effect of macroeconomic policies on misery index. Although, the work of Okonji and Igbunugo (2019) [28] considered macroeconomic performance and economic wellbeing using misery index, they used monthly time series data from 1990 to 2017 and estimated a K-Class model. The gap which this study fills is to examine macroeconomic policies and misery index using annually time series data that spanned from 1981 to 2018 using Johansen cointegration and error correction model (ECM). The rest of the study centres on literature review, methodology, Data analysis, and conclusions and recommendations.

Literature Review

Conceptual Clarifications

Macroeconomic Policies

Macroeconomic policies are usually implemented through two sets of tools- fiscal and monetary policies. Both forms of policy are used to stabilize the economy, which can mean boosting the economy to the level of GDP consistent with full employment. Macroeconomic policy focuses on limiting the effects of the business cycle to achieve the economic goals of price stability, full employment, and growth.

Misery Index

Misery index otherwise known as the economic discomfort index (EDI) is one of the early attempts at developing a comprehensive index comprising a range of indicators for tracking macroeconomic conditions along the business cycles. The index was created by Okun (1966). It comprises of inflation and unemployment rates for a specific economy. It was made popular in the early part of 1970s, when the United States of America was experiencing economic stagflation. As a result of the stagflation, a higher level of either inflation or unemployment was shown to have a negative impact on the welfare of the citizens. Okun (1966), therefore, suggested the misery index as a measure of economic distress due to the significant cost burden imposed on the citizenry by the negative economic conditions in the United States at the time. In its original form, the index was computed as a combination of unemployment and inflation rates.

Mankiw (2010) [22] explained that the index measures the level of economic discomfort as an unweighted sum of unemployment and inflation which constitutes two important indicators of macroeconomic policy outcomes. Over the years, other variants of the index have been developed such as the Barro (1999) [7] misery index which includes interest rates and GDP growth rate into the mix.

Hufbauer, Kim, and Rosen (2008) and Barro (1999) ^[7] works applied to other countries in measuring the index. The index has since then, become an important measure of economic livelihood in many countries and employed by policy makers to guide policy (Cohen *et al.*, 2014). Largely, the index is a vector quantity that has magnitude and direction that is usually triggered by the direction and magnitude of unemployment, growth rate and inflation at any given point in time. Hence, an upward movement in the misery index signals the presence of a negative consumer sentiment associated with an economic discomfort. This study sees misery index in line with Barro's (1999) ^[7] view as an aggregation of unemployment, inflation, interest rate minus growth rate of GDP in Nigeria.

Theoretical Literature

This study is anchored on the Keynesian theory of Government intervention and the Monetarist theory. This was first presented by Keynes in his book, 'The General Theory of Employment, Interest and Money', published in 1936. The Keynes theory states that expansion of government expenditure accelerates economic growth. Keynes (1936) ^[20], assumes the aggregate supply function to be stable. He concentrates his entire attention upon the aggregate demand function to fight economic depression. He submitted that the lingering economic depression was a result of failure on the part of the government to control the economy through appropriate economic policies (Iyoha, 2003) ^[18]. Consequently, he proposed the concept of government intervention in the economy through the use of macroeconomic policies (Torres, 2010). According to Keynesian economists, when the economy is knocked off balance by serious economic shocks, the government can help restore normalcy by increasing demand through government spending. And because the influx of government spending drives businesses to hire factor input and consumers to spend, its impact is multiplied (Mankiw, 2010) ^[22]. In summary, this theory holds that increase in government expenditure leads to increase in economic activities and higher economic growth. The Keynesian theory asserts that government expenditure especially deficit financing could provide short - term stimulus to help halt a recession or depression. During a recession, aggregate expenditure is deficient causing the underutilization of inputs (economic resources). Aggregate expenditure (AE) can be increased, according to Keynes (1936) ^[20], by increasing consumption spending (C), increasing investment spending (I), increasing government spending (G), or increasing the net exports (X-M). i.e, $AE = C + I + G + (X - M)$. For the sake of simplicity, this analysis holds that public spending measures have a direct impact on aggregate demand, which will stimulate the economy.

The monetarist theory started with the Milton Friedman's publication in 1956, of the quantitative money theory. Friedman's and the Chicago School's greatest achievement was to show that money stock is not influenced by the interest rate. In their view, money stock is a useful variable in the economic revival policies. Also, another idea proposed by Friedman (1969) ^[12], was that only unanticipated shocks in money stock have effects on the real economy. Friedman argues that changes in the money stock are independent of those in the money demand. Emphasizing this, he sees positive correlation between money and production as a reflection of causality from

money stock to production. Promoting a monetarist theory of a rather general nature, the Chicago School explanatorily covers all forms of market economy. Cerna (2012) ^[10] shows that monetary theories are supported by prestigious economists, one of them being Milton Friedman, author of 'Inflation and monetary systems' (1968). These two theories are relevant to this study as their explanations expose how macroeconomic policies can be used to manage economic misery.

Empirical Literature Review

There a number of studies that relates macroeconomic policy variables with indicators of economic misery. For example, Ajisafe and Folorunso (2002) ^[3] studied the relative effectiveness of monetary and fiscal policy on economic activity in Nigeria was determined through co-integration and error correction modeling techniques. The time series properties of the variables were investigated by conducting a unit root test using annual series data for the period 1970-1998. The result of our analysis shows that monetary rather than fiscal policy exerts a great impact on economic activity in Nigeria. The emphasis on fiscal action of the government has led to greater distortion in the Nigerian economy. They were however, of the opinion that both monetary and fiscal policies should be complementary. Mohammad, Wasti, Lal and Hussain (2009) ^[24] examined the long run relationship among M2, inflation, government expenditure impact and economic growth in case of Pakistan. For this purpose they used Johansen cointegration and Granger causality tests to find out long run association and causality. They found a negative relation between public expenditure and inflation. They explained that most of public expenditure is non-development and inflation is due to adverse supply shock (cost push inflation) in case of Pakistan. Nevertheless, Mountford and Uhlig (2008) ^[25] found no significant role for monetary policy but have support for fiscal policy.

Adefeso and Mobolaji (2010) ^[1] examined the relative effectiveness of fiscal and monetary policy on economic growth in Nigeria. Annual time series data from 1970 – 2007 is employed. Error correction mechanism and co-integration technique have been used in the study. Gross domestic product, broad money, government expenditure and degree of openness have been used in the study. Results indicate that the effect of monetary policy on economic growth in Nigeria is much stronger than fiscal policy. They recommended that policy makers should emphasize on monetary policy for the purpose of economic stabilization in Nigeria.

Iyeli, Uda and Akpan (2012) ^[17] investigated the relative effectiveness of monetary and fiscal policies on economic activity in Nigeria. They used broad money supply and government fiscal deficits to measure their influences on economic activity represented by the gross domestic product (GDP). Two equations were estimated on the relative effectiveness of monetary vis-à-vis fiscal policy. They used error correction mechanism with annual time series data for the period 1970 through 2001. The results of the study confirmed the earlier work of Bogunjoko (1997) ^[8] that the contemporaneous contribution of broad money supply (MS2) to the inflationary cycle in Nigeria is weak, but it one year lagged value is strong, positive and significant. The effects of Money Supply factors on inflation in Nigeria appear dominant, while the role of fiscal deficit is pervasive.

The study also confirmed that the role of fiscal policy (especially fiscal deficits) although positive, is negligible and in some instances statistically insignificant in influencing cyclical inflation rate in Nigeria within the period under review. Output model confirms that money matters in Nigeria and that the appropriate monetary target is the Broad Money Supply. It concludes that the effect of monetary policy on output growth has an edge over fiscal policy variable as a measure of output stabilization while fiscal policy efforts of the Federal Government of Nigeria are not positive in stimulating output growth.

Aliyu (2012) ^[4] in his study examined macroeconomic policy, output and unemployment dynamic in Nigeria's using time series data for the period 1970-2010. The study estimated a linear Okun-type model using the transitory and permanent components of the real output series. Results from the linear estimates suggest that the short-run link between output and unemployment is negative as expected, but that the long-run relationship is positive. This result therefore provides support for the hypothesis of non-linearity in the dynamic relationship between output and unemployment. The study also estimated a non-linear variant of the Okun's type model using the Generalised Method of Moments. The results confirmed that the dynamic relationship is non-linear and hump-shaped. At unemployment rates below the threshold of 5.5%, the relationship is positive, and becomes negative at higher unemployment rates. It therefore argued that when unemployment rate is below the 5.5% threshold, the economy experiences jobless growth. Under this condition, supply-side, rather than demand-side policies are better suited for effective employment generation. It was also found that output increases in the service, agricultural and industrial sectors have the greater potential for employment generation. The study therefore argued that policies that aim at raising output in these sectors would be more efficient in reducing unemployment in Nigeria.

Kareem, Afolabi, Raheem, and Bashir (2013) ^[19] studied the impact of fiscal and monetary instruments on economic growth. OLS regression was employed to analyze the variables employed. The results of the findings revealed that there has been fluctuation in the trend of policy variables in Nigeria. It also showed that broad money and recurrent expenditure have positive relationship with RGDP but recurrent expenditure is 5% significant with broad money having no significant level. Whereas, narrow money, inflation, interest rate and capital expenditure have negative impact on GDP though interest rate is significant at 10%. The study concluded that narrow money, broad money, government recurrent expenditure and capital expenditure were significant variables that affect economic growth in Nigeria.

Falade and Folorunso (2015) ^[11] studied the relative effectiveness of fiscal and monetary policy instruments and economic growth sustainability in Nigeria. They employed the methodology of error correction mechanism whereby the time series properties of fiscal and monetary variables were first tested using Augmented Dickey-Fuller and Philip Perron unit root tests, followed by Johansen co-integration test among the series using annual data for the period 1970-2013. The result suggests that there is a long run relationship among fiscal and monetary variables and economic growth. It however, found that the current level of exchange rate and its immediate past level, domestic interest

rate, current level of government revenue and current level of money supply are the appropriate policy instrument mix in promoting economic growth both in the short and long run. The paper concluded that fiscal and monetary policies are still complementary.

The work of Mohamed, Mnarana, Abdul, Allieu & Chernor (2015) ^[23] investigated macroeconomic policies and growth of output in the Sierra Leone economy from 1970-2010, within the framework of error correction model (ECM). The study reveals that high budget deficit, high inflation and exchange rate instability were observed as contributing factors for the economy's poor growth performance. The war dummy is found to have a negative effect on investment and the growth of output, thus political instability which is characterized by the war period erodes confidence in the investment climate and thus affects growth. Given the welfare implication of economic growth, it was recommended that government should vigorously pursue prudent macroeconomic policies, promoting institutional and infrastructural development conducive to attract competitive local and foreign investments to encourage economic growth.

The study of Adegioriola and Siyan (2015) ^[2] on the relative impact of money supply and government expenditure on economic growth in Nigeria adopted the beta Coefficients techniques and Two Stage Least Square to analyze the data. They used three different models. The monetary model, fiscal model and monetary and fiscal model; the results obtained showed that broad money supply is more effective among the two monetary policy instruments (broad money supply and interest rate). On the other hand, in the fiscal model, government expenditure is more potent than any of the other two fiscal policy instruments (tax revenue and budget deficit). On the third model (monetary and fiscal), the result showed that government expenditure is relatively more effective compared with money supply on economic activities. They found out that the impact government expenditure as a fiscal policy instrument is greater, more reliable (predictable) and faster in stabilizing the Nigerian economy than money supply as a monetary policy instrument. They therefore advised that both policy instruments can be mixed to bring about economic growth and stability for Nigeria.

Attamah, Anthony and Ukpere (2015) ^[5] in their study investigated the impact of fiscal and monetary policies on unemployment problem in Nigeria covering the periods 1980 to 2013. The study used government expenditures and revenues to measure fiscal policy while monetary policy was proxied by broad money supply (M2), interest and exchange rates respectively. The study adopted the method of econometric analysis employing OLS techniques and unit roots test using the Augmented Dickey-Fuller and the co-integration tests using the Engle Granger approach. Error correction models were estimated to take care of the short run dynamics. It was found that while government expenditure had a positive relationship with unemployment problem in Nigeria, the result of government revenue was negative and insignificant on unemployment problem. For monetary policy, it was found that money supply and exchange rate had positive and significant impact while interest rate has only a positive relationship on unemployment problem in Nigeria. This meets the a priori expectation. The study also revealed that increases in interest and exchange rates escalate unemployment by

increasing cost of production which discourages the private sector from employing large workforce. On the other hand, national productivity measured by real GDP had a negative and significant impact on unemployment rate in Nigeria. The study recommended that for an effective combat to unemployment problem in Nigeria, there should be a systematic diversion of strategies, thus more emphasis should be laid on aggressively pursuing entrepreneurial development and increased productivity. Again government should aggressively focus on investment, employment generation and economic growth that has mechanism to trickle down to the masses.

Ogunmuyiwa (2016) [27] in his study, examined the impact of monetary and fiscal policy management on the problem of inflation in Nigeria. He used monthly data spanning from January 2010 to October 2016 on inflation rate, interest rate, exchange rate, narrow money, broad money, government capital expenditure and government recurrent expenditure. The autoregressive distributed lag (ARDL) was employed after ascertaining the stationarity properties of the series through the augmented Dickey-Fuller (ADF) test. The results showed that broad money supply (M2) and capital expenditure (CE) were significant and are positively related (short and long run) to inflation in Nigeria. Exchange rate was significant and positively related to inflation in the long run. The study also revealed that Nigerian inflationary situation is driven by monetary and fiscal policies in the long run. Narrow money has no significant impact on inflation problem both in the short and long run in Nigeria. The study concluded that monetary and fiscal policies have positive impact on inflation in Nigeria and recommended that monetary and fiscal policies should be harnessed, coordinated and sustained with the help of Central Bank of Nigeria in order to combat the problem of inflation in Nigeria.”

“In their study, Okonji and Igbunugo (2019) [28] examined the role of macroeconomic performance in improving the wellbeing of the people. They used economic growth, debts, fiscal policy stance, monetary policy stance and efficiency of governance as indicators of macroeconomic performance. They estimated a K-Class model with monthly time series data from 1990 to 2017. Their analyses indicated that economic growth, through allocative and distributive efficiency, supported the improvement of wellbeing. Also, a contractionary monetary policy that raises interest rate and unemployment rate has a dampening effect on wellbeing. Their analysis further revealed that excessive domestic borrowing that characterizes the Nigerian economy undermines the wellbeing of the Nigerian population. They therefore recommended that the monetary authority reconsiders its current stance on maintaining very high rediscount rate in Nigeria

Methodology

Model Specifications

Following the Keynesian and Monetarist models and the empirical models adopted by Ikonji and Igbunugo (2019) [28], this study specifies its model with some modifications as follows-

$$MDX = f(GCEX, GREX, GEDT, MNSP, INTR, TRB, DMV) \tag{1}$$

The ordinary least square (OLS) form of the model can be written as-

$$MDX = \lambda_0 + \lambda_1 GCEX + \lambda_2 GREX + \lambda_3 GEDT + \lambda_4 MNSP + \lambda_5 INTR + \lambda_6 TRB + \lambda_7 DMV + u \tag{2}$$

The log transformed form of the equation is written as-

$$MDX = \lambda_0 + \lambda_1 \log GCEX + \lambda_2 \log GREX + \lambda_3 \log GEDT + \lambda_4 \log MNSP + \lambda_5 \log INTR + \lambda_6 \log TRB + \lambda_7 \log DMV + u \tag{3}$$

$$\lambda_1 < 0; \lambda_2 < 0; \lambda_3 > 0; \lambda_4 < 0; \lambda_5 > 0; \lambda_6 < 0; \lambda_7 < 0;$$

Where-

MDX = Misery index (the sum of unemployment, inflation, lending rates less GDP growth rate)

GCEX = Government capital expenditure

GREX = Government recurrent expenditure

GEDT = Government external debt

MNSP = Money supply

INTR = Interest rate

TRB = Treasury bill

DMV = Dummy variable

λ_0 = constant or intercept

$\lambda_1 - \lambda_7$ = co-efficient of explanatory variables

u = error term or stochastic variable

Data Collection and Analytical Technique

This study by its nature suggests that data be collected from secondary sources. This is the reason the present study obtained data from the secondary sources. They include: journals, books, conference papers, Central Bank of Nigeria (CBN) statistical bulletin. This study adopted the ordinary least square (OLS) method of regression analysis. The study conducted some other tests such as- R², T-test, F-test, DW-tests, Philip Perron (PP) unit root test, Johansen cointegration test and error correction mechanism (ECM). E-views 10.0 was used to facilitate the estimation processes.”

Results and discussion of findings

Unit Root Analysis

The Philip Perron (PP) unit root test was employed to ascertain whether the time series data used in this study were stationary or not. The results of the PP unit root test are presented and discussed in table 4.1 as follows:

Table 1: PP Unit Root Stationary Test

Variables	PP Statistics at Levels	1% Critical Value	5% Critical Value	PP Statistics at first Difference	1% Critical Value	5% Critical Value	Order of integration
MDX	-2.798692	-3.621023	-2.943427	-9.724657**	-3.626784	-2.945842	I(1)
Log(GCEX)	-0.883411	-3.621023	-2.943427	-6.268876**	-3.626784	-2.945842	I(1)
Log(GREX)	-1.431489	-3.621023	-2.943427	-8.039243**	-3.626784	-2.945842	I(1)
Log(GEDT)	-2.900566	-3.621023	-2.943427	-4.654941**	-3.626784	-2.945842	I(1)
Log(MNSP)	-0.642565	-3.621023	-2.943427	-3.634350**	-3.626784	-2.945842	I(1)
INTR	-2.495756	-3.621023	-2.943427	-7.771250**	-3.626784	-2.945842	I(1)
Log(TRB)	-1.900727	-3.621023	-2.943427	-4.573263**	-3.626784	-2.945842	I(1)
DMV	-1.464055	-3.621023	-2.943427	-6.000004**	-3.626784	-2.945842	I(1)

Source- Computed from E-view 10.0

Note- *(**) indicates (1%) and (5%) Significant Levels

The unit root test in the table 4.1 above shows that misery index, government capital expenditure, government recurrent expenditure, government external debt, money supply, interest rate, treasury bills and dummy variable were stationary at first difference [that is, I(1)] at 1% and 5% significant levels. Therefore, the time series data used in this study were stationary.

Johansen Cointegration Test

In order to test for a longrun equilibrium relationship between macroeconomic policies and misery index, Johansen cointegration test was carried out. The choice of Johansen cointegration test was informed by the fact that all the variables were stationary at first difference. The Johansen cointegration test for the model was presented in tables 4.2.

Table 2: Johansen Cointegration Test for Macroeconomic Policy and Misery Index

Unrestricted Cointegration Rank Test (Trace)**				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.869534	223.2107	159.5297	0.0000
At most 1 *	0.731549	151.9283	125.6154	0.0005
At most 2 *	0.710488	105.9003	95.75366	0.0083
At most 3	0.458173	62.51567	69.81889	0.1664
At most 4	0.361353	41.06739	47.85613	0.1865
At most 5	0.280105	25.37324	29.79707	0.1485
At most 6	0.215666	13.87048	15.49471	0.0866
At most 7 *	0.142196	5.368269	3.841466	0.0205
*Trace test indicates 4 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)**				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.869534	71.28245	52.36261	0.0002
At most 1	0.731549	46.02800	46.23142	0.0525
At most 2 *	0.710488	43.38460	40.07757	0.0205
At most 3	0.458173	21.44829	33.87687	0.6502
At most 4	0.361353	15.69414	27.58434	0.6916
At most 5	0.280105	11.50276	21.13162	0.5971
At most 6	0.215666	8.502213	14.26460	0.3299
At most 7 *	0.142196	5.368269	3.841466	0.0205
* Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Source- Computed from E-view 10.0

From the result in table 4.2, trace statistic indicated 4 cointegrating equations and max-eigen statistics indicate 3 cointegrating equations. This means that a longrun equilibrium relationship exist between the mix policy variables and misery index in Nigeria.

Error Correction Mechanism Model**

In order to adjust for the shortrun, the ECM model that established the relationship between macroeconomic policies and misery index was estimated. The ECM became necessary because of the lonrun equilibrium relationship. Hence, the need for shortrun adjustment. The result of the parsimonious error correction model was presented in tables 4.3.

Table 3: Parsimonious ECM Estimates for Macroeconomic Policy and Misery Index

Dependent Variable: D(MDX)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.944216	6.177243	1.447930	0.1669
DLOG(GCEX)	-14.61727	5.954916	-2.454657	0.0259
DLOG(GCEX(-1))	-6.450146	5.472569	-1.178632	0.2558
DLOG(GCEX(-2))	-12.01133	6.411847	-1.873303	0.0794
DLOG(GREX)	-31.22709	11.12096	-2.807950	0.0126
DLOG(GREX(-2))	19.13445	9.191527	2.081749	0.0538
DLOG(GREX(-3))	8.094444	8.979549	0.901431	0.3807
DLOG(GEDT)	13.13504	4.522677	2.904263	0.0103
DLOG(GEDT(-1))	1.814025	4.099436	0.442506	0.6640
DLOG(MNSP)	-56.41318	18.22935	-3.094635	0.0070
DLOG(MNSP(-2))	-51.12070	20.10581	-2.542583	0.0217
D(INTR)	0.500097	0.248773	2.010254	0.0437
D(INTR(-1))	1.831785	0.801629	2.285078	0.0363

DLOG(TRB)	-5.184421	7.250278	-0.715065	0.4849
DLOG(TRB(-3))	-50.56833	9.701716	-5.212307	0.0001
D(DMV)	-49.50133	15.96350	-3.100906	0.0069
D(DMV(-2))	81.08269	18.79749	4.313485	0.0005
ECM(-1)	-0.547489	0.144859	-3.779449	0.0016
“R-squared	0.880521	Mean dependent var		0.377647
Adjusted R-squared	0.753575	S.D. dependent var		17.45439
S.E. of regression	8.664571	Akaike info criterion		7.461414
Sum squared resid	1201.197	Schwarz criterion		8.269487
Log likelihood	-108.8440	Hannan-Quinn criter.		7.736990
F-statistic	6.936177	Durbin-Watson stat		2.057364
Prob(F-statistic)”	0.000165			

Source: “Computed from E-view 10.0

From the results in table 4.3, Adjusted R² is 0.753575. This means that about 75% of the variation in the dependent variable is as a result of the variations in the explanatory variables. The remaining 25% may be attributed to the variables that are not included in the model. The F-statistic of 6.936177 indicates that the overall model is statistically significant at 5 percent (%) level. The result of DW-statistic of 2.057364 shows no autocorrelation of the error term in ECM. This means that the estimates based on OLS is not spurious. The value ECM of -0.547489 indicates approximately 54% speed of adjustment to shortrun dynamics.

The theoretical apriori expectations show that government capital expenditure (GCEX), government recurrent expenditure (GREX) and government external debt (GEDT) conformed to theory. This means that increase in government capital expenditure (GCEX) and government recurrent expenditure (GREX) reduced misery index in Nigeria in the current period. It implies that rising external debt in current period worsened misery index in Nigeria. Also, money supply (MNSP), interest rate (INTR) and

treasury bills (TRB) conformed to theory. This means that increase in money supply (MNSP) and treasury bills (TRB) and reduction in interest rate (INTR) could reduce misery index in Nigeria in the current period. The analysis further revealed that a mix of fiscal and monetary policies under the current regime of market based policy would be effective in tackling economic misery in Nigeria despite the high level of corruption, insecurity and poor economic infrastructure confronting policy environment in Nigeria. The implication is that the conduct of expansionary fiscal and monetary policies with minimal cases of corruption, insecurity and improvement in infrastructure will keep economic discomfort very low in Nigeria. The various hypotheses tested revealed that government capital expenditure (GCEX), government recurrent expenditure (GREX), government external debt (GEDT), money supply (MNSP), interest rate (INTR) were significantly related with misery index in Nigeria in the current period, but treasury bills was not.

Stability Test”

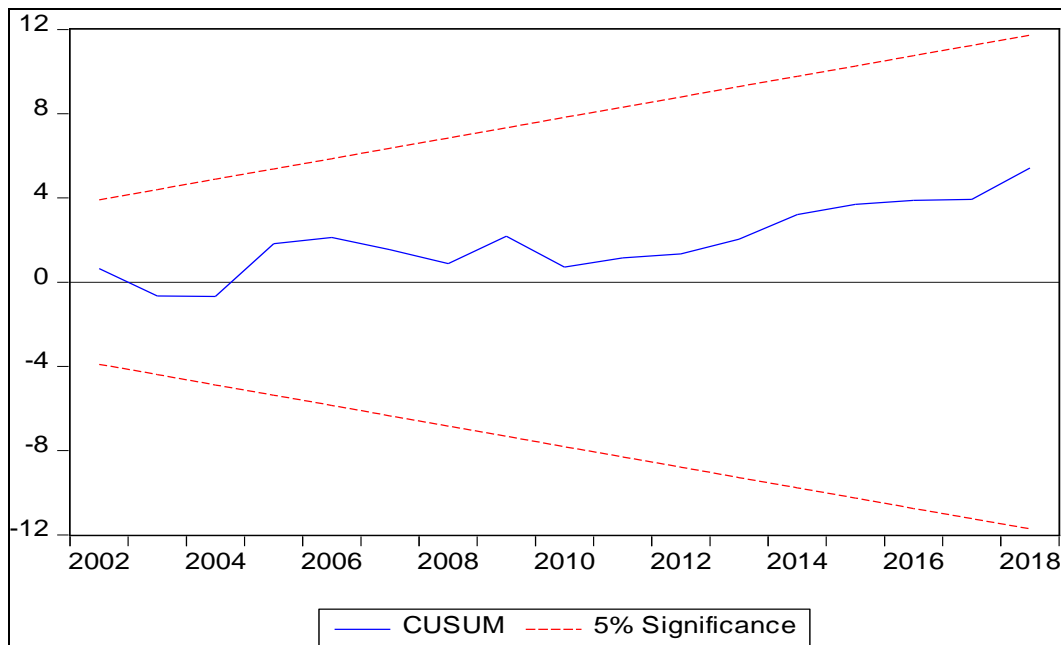


Fig 1: Cumulative Sum for the Model

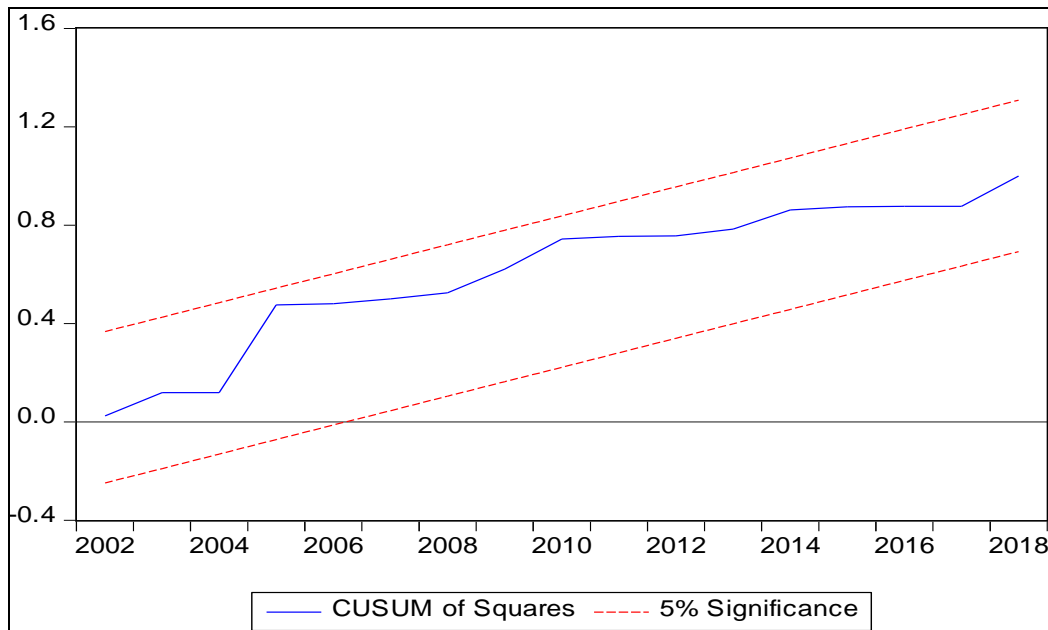


Fig 2: Cumulative Sum Squares for the Model

Conclusions and Recommendations

This study examined macroeconomic policies and misery index in Nigeria from 1981 to 2018. The macroeconomic policy variables considered in this study are government capital expenditure (GCEX), government recurrent expenditure (GREX) and government external debt (GEDT), money supply (MNSP), interest rate (INTR) and treasury bills (TRB). The study also introduced dummy variable to capture the effects of policy shift on misery index in Nigeria. Two major policy regimes was operated in Nigeria, direct and market based policies. Direct policy was coded zero (0) while indirect or market based policy was coded one (1). Misery index was measured by the sum of unemployment, inflation and lending rates less growth rate of real GDP per capita.

This study adopted the ordinary least square (OLS) method of regression analysis. The study conducted some other tests such as: R^2 , T-test, F-test, DW-tests, Philip Perron (PP) unit root test, Johansen cointegration test and error correction mechanism (ECM). From the results of the regression estimates it was revealed that: macroeconomic policy variables of government capital expenditure (GCEX), government recurrent expenditure (GREX) and government external debt (GEDT) supported the Keynesian theory. This means that increase in government capital expenditure (GCEX) and government recurrent expenditure (GREX) reduced misery index in Nigeria in the current period. It implies that rising external debt in current period worsened misery index in Nigeria. Also, money supply (MNSP), interest rate (INTR) and treasury bills (TRB) conformed to theory. This means that increase in money supply (MNSP) and treasury bills (TRB) and reduction in interest rate (INTR) could reduce misery index in Nigeria in the current period. It was further revealed that a mix of fiscal and monetary policies under the current regime of market based policy as indicated by the dummy variable would be effective in tackling economic misery in Nigeria. Although, the extent to which these policies could minimize economic misery may be adversely affected by high level of corruption, insecurity and poor economic and social infrastructure confronting policy environment in Nigeria.

The implication is that the conduct of expansionary fiscal and monetary policies with minimal cases of corruption and insecurity, and improvement in infrastructure will keep economic discomfort very low in Nigeria. The policy implication is that fiscal policy performance of the government can be improved through prioritization of capital expenditure in the medium term expenditure framework and the annual budget. Also, the financial sector reforms through recapitalization and consolidation of the financial sector in banks and non-banks financial institutions must be sustained in order to keep the economic misery low. Based on the findings of the study, the following recommendations are made for policy and for further studies-

- The government should sustain the recent expansionary fiscal policy actions and it should give more priority to capital expenditure than the recurrent expenditure component. This because it has the capacity of creating employment opportunities through building and construction works for the teeming Nigerian population. Hence, reducing the rate of unemployment and misery index in Nigeria. There should be reduction in government external debt profile. This will instill confidence in foreign investors to come. As a result, jobs will be generated and misery index minimized.
- The Central Bank of Nigeria (CBN) should as a matter of urgency, reduce the rate of interest to a lower single digit to encourage investments, boost job creation and reduce economic misery in Nigeria. There should be gradual and steady increase in money supply. This will help to reduce interest rate, boost investment, create jobs and minimize economic misery in Nigeria.
- There is need to sustain monetary policy environment through information and communication technology especially the Bank Verification Number (BVN) and cashless policy to reduce financial crimes in Nigeria. This will reduce the incidence of monies that are not used for productive investments to create unnecessary inflation so as to keep misery index very low in Nigeria.”

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