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External Shock And The Responsiveness Of Fiscal Measures In Nigerian Economy

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Abstract: ***The Nigerian economy is an open economy, one that is highly integrated within the global economy. This study was able to provide updated knowledge on the effect of external shocks on fiscal measures episodes experienced in Nigeria. This study was able to examine the responses of fiscal measures variables to various external shocks, assess the effect of external shocks on the national income output in Nigeria among others during the period considered. The Vector Autoregession (VAR) technique was employed after the ADF unit root test was carried out on the time series data used. It was revealed that world oil price shock as one of the variables identified as external shock having a distortionary impact on the government revenue, government expenditures and to have affected the economic performance indicator (GDP) negatively. External reserve has impacted positively on government revenue, government expenditure as well as performance of the economy (GDP). This paper concluded that the Nigeria economy and her fiscal measures did not respond favorably to the shock from external factors identified in the study. Policies were recommended to diversified the economy, encourage competitive exchange rate and fiscal prudency.***

Keywords: ***External shock, Fiscal measures, World oil price, Government expenditures, Government revenue, External reserve, Vector autoregession.***

I. INTRODUCTION

The Nigerian economy is an open economy, one that is highly integrated within the global economy. From one perspective this increases the sensitivity of our economy to outside events for example a recession or slowdown in key international markets will inevitably have downside effects on demand, output and employment in the Nigerian economy. The unexpected events happens and causes changes in the level of demand, output and employment, the headwinds can alter direction with great speed leading to uncertainty about where the economy is heading and these events are called "shocks" (Jim, 2009). Over the year, Nigeria economy has been subjected to various external or exogenous shocks that made the pursuit of sound economic measures and particularly that of fiscal measures very difficult to carry out by the government.

Fiscal measures and macroeconomic instruments have been found effective in rescuing a nation undergoing economic disturbances. The call for direct government intervention in the economy is an important aspect of government in achieving macroeconomic objectives in any economy. The pioneer work on fiscal measures in an economy was done by John Maynard Keynes in 1936 when the market mechanism failed to efficiently allocate economic resources to achieve macroeconomic goals and objectives. Keynes challenged the mainstream classical postulation of self-equilibrating full employment economy, he challenged this concept by saying that there was nothing in the economy system that automatically guarantee full employment level of income and the system was not self –correcting itself and maintained that in order for full employment of labour in the economy, therefore, it is necessary for government to take deliberate fiscal measures (Ogunsakin, 2008).

Notwithstanding, the prominence gains by fiscal measures in the global economy today have exposed various limitations of the measures which have further deepened researches on it. Among many revelations on the limitations of fiscal measures

is its behavior to some external factors that might either inhibit or promote it effectiveness (Capistran and Caudra, 2011). According to Capistaran and Caudra (2011), some external influences or shocks which can either be controllable or uncontrollable by the government of a nation appeared to have impact on the effectiveness of government fiscal measures or instruments and these external factors varies from country to country and it depends on both the structural and the institutional set up of a particular country.

Arestis and Sawyer (2010) in supporting these views, pointed out those external factors can constitute perturbing shock on fiscal measures behavior and consequently affecting its effectiveness in an economy. However, Arestis and Sawyer both pointed out that not all these external shocks have negative effect on fiscal measures, the effect of a particular external shock would have on the behavior of fiscal measures depends on many factors namely; the level of economic development country, the institutional framework of the country and a host of socio-political factors among others.

Macroeconomic dynamic in Nigeria has been dominated in the past by fiscal instability. There have been strong deficit and debt bias stemming from government revenue volatility in this present day coupled with low fiscal buffers, expansionary fiscal policy, dwindling foreign exchange earnings, declining reserves, weak oil market, high volume of maturing instruments, impact of external shocks and high unemployment rate. Be that as it may, experts insist it would not be a smooth sail for the incoming government of Buhari as the other challenges in terms of revenue, reserves, debt and the rising fiscal spending still pose a challenge for the country (Ubunze 2015). According to Managing Director and Head, Africa Macro Global Research at Standard Chartered Bank, Razia Khan, noted that, With oil prices still subdued, there will still be a need to reduce government spending and to put in place a foreign exchange policy that safeguards foreign exchange reserves, while still overseeing the free availability of foreign exchange (Ubunze 2015). The rise in the exchange rate of the dollar and subsequent depreciation of the naira is as a result of external factor which the Nigerian economy is not immune of due to over dependence on oil and the fall in price of the commodity is of a major concern to the Nigerian economy.

Though, considering the uncertain fiscal dynamics over the years in Nigeria, fiscal adjustment witnessed in 2005 and the restructuring of the fiscal measures in 2014 might still not be sustained (CBN 2014). The Nigerian fiscal revenues are largely coincided with oil revenue accounting for nearly 80 percent of government revenue, which implies that the economy is highly exposed to price fluctuations in the world oil market. Obiyeluakun and viegi (2009), the absence of suitable fiscal rules and a proper finance-management framework for oil related risks over the past years have led to boom and bust type fiscal measures that have generated large and unpredictable movement in government finances. Hence, there has been a recurrent source of destabilizing effect of fiscal measures on the domestic price and exchange rate as well as the financial system in Nigeria.

A. STATEMENT OF THE PROBLEM

Over the years fiscal measures have been the major measures used side by side with monetary measures to maintain economic stability, increase output, achieve macroeconomic goals, and promote overall economic development of a country. However, in other words, fiscal measures have been identified as the measures that tend to have a long run relationship with economy growth. There is a belief that such measures will be highly susceptible to external shocks or influences which might mitigate having sustainable effect on output (Olasunkanmi and Babatunde, 2013).

World bank (2013), the two major variables of fiscal measures that is government revenue and expenditure have been identified to be highly prone to external influence especially in a country that is naturally endowed and heavily dependent on imported goods. Many developing countries Nigeria inclusive rely heavily on the export of one or few commodities (oil, coffee, copper, cocoa etc.) for foreign exchange earnings. External shocks may originate from unexpected changes in the prices arising from changes in supply conditions or in the level of demand of these commodities as the case may be. Major world booms and recessions, by affecting the level of commodity demand have generated positive or negative shock for LDC exports (Vito, 2000).

The world oil prices have collapsed from record high of $105 per barrel to below $50 in a little bit over a year, the crude oil price has plummeted to a record low in recent times. The IMF has said that the slump in crude oil price will have severe impact on the Nigerian economy as well as other oil producing countries in the continent in 2015 and projected Africa growth of 4.5 percent in 2015, from 5 percent in 2014. The plunged oil price has led to a drastic reduction in Nigeria revenue and had compelled the federal government to introduce some economic stabilization measures in order to ensure a more sustainable revenue profile in 2015 (This Day Live, Nov 6,2015).

However, most and few existing studies from Nigeria focus has been broadly based on assessing the effect of oil price shocks on the broad macroeconomic variables (see; Olomola, 2006; Olusegun, 2008; Umar and Abdulhahakeem, 2010; Aremo , Orisadare and Ekperiware. ;2012). This present study is different from the existing ones as it focuses on specific economic measures–fiscal measures which make it a candidate for detailed analysis. Also, most of the studies in this area terminated in 2010 and majorly focused only on oil price shock as an external shock ; thus, this present study will not only add to the existing literatures ,but will provide updated knowledge on the effect of external shocks on fiscal measures episodes experienced in Nigeria. Also, the study of this kind is quite imperative given the current state of the Nigerian economy experiencing fall in government revenue earnings, the plummeted world oil price, high exchange rate, depleted external reserve, increasing government debt and the austerity measures of the government as it affect the Nigeria economy in this current dispensation. In addition, Vector Autoregession (VAR) technique has been applied to examine the link between the shocks in world oil price, exchange rate, external reserve and the response of government revenue,

government expenditures/spending and gross domestic product.

Against this background therefore, the specific objectives of the study are to examine the responses of fiscal measures variables to various external shocks identified, assess the effect of external factors and fiscal measures on the national income output in Nigeria and examine the extent of the revenue accrued to Nigerian government being affected by the world oil price shock. However, the scope of the study was limited to the year 1990 to 2016, as the length of the period was adequate enough for the study to achieve its objectives.

II. LITERATURE REVIEW

Fiscal measure is based on the theories of British economist John Maynard Keynes. Also known as Keynesian economics, this 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 (generally considered to be healthy when between 2-3%), increases employment and maintains a healthy value of money. Before the Great Depression, which lasted from Sept. 4, 1929 to the late 1930s or early 1940s, the government's approach to the economy was laissez-faire. Following World War II, it was determined that the government had to take a proactive role in the economy to regulate unemployment, business cycles, inflation and the cost of money. By using a mix of monetary and fiscal policies, governments are able to control economic phenomena.

Fiscal measures are seen as that aspect of government measures that deals with the manipulations of both government revenue and expenditure to achieve macroeconomic goals and objectives. Output growth being a major macroeconomic objective has formed a major focus of many researchers and fiscal measures have been identified as germane measures that can help to achieve the growth and other macroeconomic objectives (Angelopoulos, Malley and Woitek, 2007).

Fiscal measures are the policy under which the government of a country uses fiscal measures (or instruments) to correct excess demand and deficient demand and to achieve other desirable objectives, there are mainly three types of fiscal measures which are government revenue/taxes, public expenditures and public borrowing (Sushil, 2015)

Dixit and Lambertini (2003), fiscal measure is the use of government spending and taxation to influence the economy. Government typically uses fiscal measures to promote strong and sustainable growth and reduce unemployment and poverty. Economic literature has identified quite a number of macroeconomic variables that constitute external shock to fiscal measure framework. The transmission mechanism of fiscal measure has been identified as been prone to some external disturbances that perturb the whole fiscal administration (Obinyeluaku and Viegi 2009). Notwithstanding, the structure and the level of development of an economy has been identified as the major determinants of what constitute external shock in a particular economy.

An external shock is an unexpected change in an economic variable which takes place outside the economy. An example might be an increase in the price of oil having an impact on firm's costs of production or an economy. Vito (2000), External shocks are defined as uncontrollable external events that have substantial effects on a country's income level. This could occur as a result of changes in export earnings, changes in import prices, changes in the availability of foreign credit and other factors. External Shock is an event that produces a significant change within an economy, despite occurring outside of it. External shocks are unpredictable and typically impact supply or demand throughout the markets. An external shock may come in a variety of forms. A shock in the supply of staple commodities, such as oil, can cause prices to skyrocket, making it expensive to use for business purposes. The rapid devaluation of a currency would produce a shock for the import/export industry because a nation would have difficulty bringing in foreign products.

B. REVIEW OF EMPIRICAL LITERATURES

a. CROSS-COUNTRY REVIEW

Clements, Flores and Leigh (2009), assessed the macroeconomic effect of external shocks and the impact of various fiscal and monetary policy responses in Colombia with the use of an open-economy new Keynesian overlapping generation's model and global integrated fiscal and monetary model and came into conclusion that under the Colombia inflation targeting regime, which incorporates exchange rate flexibility and a highly responsive monetary policy, the Colombia economy is well poised to adjust to different external shock. They suggested that the potential role of fiscal policy in responding to shocks depends critically on financing conditions.

Capistran and Cadra (2011) examined fiscal policy response to external shocks in the emerging economy. According to them, the emerging economies have been subjected to abrupt reversal in capital inflow, which have adverse consequences for economic activities and financial stability. The paper provided a sample analytical framework to rationalize this evidence. In particular, it addressed this issue by developing a small-scale macroeconomic model of the new Keynesian type and concluded in their findings that credible monetary and fiscal policies increased policy makers' degree of freedom to respond to adverse external shocks.

Attiya et al (2011) empirically investigated the effect of fiscal policy measures or government budget deficit shocks on the current account and the other macroeconomic variables: real output, real interest rate and exchange rate for Pakistan over the period 1960-2009. The structures vector autoregressive model was employed; the paper suggested that an expansionary fiscal policy shock improves the current account and depreciates the exchange rate. The rise in private saving and full in investment contribute to the current account improvement while the exchange rate depreciates the twin divergence of fiscal deficit and current account deficit was also explained by the output shock which seems to drive the current account movement and its co-movement with the fiscal balance which supports the Ricardian view.

Gosse and Gauilaumin (2012) studied the impact of external shocks on the Asian countries policies in order to determine if these can account for the Asian side of global imbalance. To this end, they estimated a structural VAR model with block exogeneity using contemporaneous and long-run restrictions and Bayesian inference. The three external shocks of the model are an oil shock, a US monetary shock and US financial shocks. The findings of the study were that external shocks account for the current account surplus in Korea, Malaysia, Philippines, Singapore and Thailand and to a lesser extent in Japan and Indonesia; the oil shock and US monetary shock seem to have influenced the current account balance through fiscal and monetary channels.

Kinumen et al (2013) examined the relationship between external shocks; fiscal policy and income distribution in Moldova using computable general equilibrium (CGE) model .The study revealed that the impact of increased export demand and productivity growth is more heavily linked to international trade, compared with agriculture which was more vulnerable due to heavy energy reliance. A comparison between adverse shocks in two areas, higher energy import prices and lower remittances were designed to have similar effects on gross domestic product and suggested that a remittance shock led to less of a poverty increase related to the fact that remittance-receiving households were not highly vulnerable.

b. EMPIRICAL REVIEW ON NIGERIA

Olomola (2006) presented a pioneer analysis of the effect of oil price shock on output, inflation, the exchange rate and the money supply in Nigeria using quarterly data from 1970 to 2003. The VAR method was employed to analyze the data. The findings that emerged show that shocks significantly influence the real exchange rate. This could considerably lead to wealth effect capable of appreciating the real exchange rate which could ultimately squeeze the tradable sector giving rise to the Dutch Disease

Obinyeluaku and Viegi (2009) focused on oil revenue shocks and fiscal policy measures in Nigeria. They examined fiscal measure as a tool for managing oil shock revenue in Nigeria. According to their study, the Nigerian economy is heavily dependent on oil revenue to finance over 80 percent of her total expenditure making her budget vulnerable to fiscal shocks. These pose a serious threat both to the sustainability of the country's budget and to her macroeconomic stability. The study further revealed that oil windfall induces government spending that is difficult to retrench when oil revenue falls, distorting government budget allocation pattern, cohesion and stability and increased deficits and debt stock that has often created an unfavorable environment for monetary policy.

Aremo, Orisadare and Ekperiware (2012) investigated oil price shock and fiscal policy management in Nigeria. Using structural vector autoregression (SVAR) methodology, the effects of crude oil price fluctuations on two major key fiscal policy variables government expenditure and government revenue, money supply and GDP were examined and the results of their study showed that oil prices have significant effect on fiscal policy in Nigeria within the study period of 1980:1 to 2009:4. The study also revealed that oil price shock affects government revenue and GDP first before reflecting on fiscal expenditure. The study suggests strongly that diversification of the economy is necessary in order to minimize the consequences of oil price fluctuations on government revenue.

Olasunkanmi and Babatunde (2013) in their study examined the effects of fiscal policy shocks on the current account as well as the dynamic interactions among fiscal policy shocks and current account with the other macroeconomic variables: real output, real interest rate and exchange rate for Nigeria over the periods 1980:1-2010:4. The identification of fiscal policy shocks was achieved via structural VAR approach proposed by Blanchard-Perotti in year 2002. The results of the study indicated that the expansionary fiscal policy shock has a positive effect on output and exchange rate. By implication, the study suggested that fiscal policy can stimulate economic activities through expenditure expansions at a lower interest rate and exchange rate appreciation in the medium term and a sustained current account balance will enhance output via fiscal consolidations.

C. SUMMARY OF THE REVIEWS

It is observed that virtually all the past studies reviewed focused on examining the relationship between fiscal measure or policy and some other macroeconomic variables, some considered external shocks but were studies done outside Nigeria. Again, the response of fiscal measures to various disturbances caused by some external factors appears not to have been investigated by any study reviewed in the Nigerian context.

However, most of the studies that considered shock to fiscal policy/measures focused more on oil price as the shock. But literatures have shown that there are more factors that could constitute external influence to the effectiveness of fiscal measures in an economy. Therefore, identifying all these factors that form the external shocks to fiscal measures and examining cross responses flow between fiscal policy and these shocks might lead to evolvement of policies that can make fiscal policy resistant to these shocks and consequently make it a more effective measures in maintaining macroeconomic stability in Nigeria.

III. THEORETICAL FRAMEWORK AND METHODOLOGY

The frame work of this study is built on the Bacha's approach of 1987 which was redefined in the work of Martin (2010). Current account deficit to GDP, exchange rate and policy responses were the three major components in the Bacha's model.

The basic form of model is,

Changes in Ratio of Current Account Deficit to GDP = Changes in External Shocks – Changes in Policy Responses + Error Term

According to Martin (2010) these three components were statistically relevant to economic performance and also theoretically meaningful to be employed to explore transmission mechanisms of world global economic

fluctuation by using this external shock accounting approach. However, with the derivation of Bacha's model, changes in the ratio of current account balance to GDP are divided into two main parts, namely external shocks and policy-responses. External shocks were further drilled down into various individual shocks, which are retardation of world trade growth, terms of trade, direct investment interest rate, burden of debt accumulation, transfers and workers' remittances,. The policy responses were disaggregated into four components in the study. They were the export penetration--increasing share in the world export markets; import substitution replacing imports with domestic production; and reducing domestic aggregates pending "belt-tightening" in consumption and investment. Martin (2010) based on this type of model, policymakers would have information advantages to know if the current external shocks would occur, to what extent the effect to economies, and how policy rules react to adverse external shocks.

The conventional macroeconomics, negative external shocks, such as terms of trade deterioration, reduce demand for exports and international interest-rate increases, directly shrink the national income by reducing demand or the purchasing power of existing output (or both). More so, if total national output were to be sustained, cuts in income would be possible through a government austerity policy response. Thus, either real national consumption or real national savings (or both) must fall. All things being equal, a reduction in national savings decreases real investment and thereby cuts future output and real income as well. Real investment could only be sustained if the national saving rate rose or if increased resources could be obtained from the rest of the world. Similarly, real consumption could only be sustained if the savings rate declined or increased external resources were available. Therefore, sufficient external resources make it possible to keep both consumption and investment at pre-shock levels. External finance can also be proven as a crucially important determinant of external shocks influencing national macroeconomic performance.

Contrariwise, external finance can represent another source of external shock to a national economy. External shocks originating from external finance can be favorable or unfavorable to the LDCs economies. Economies relying on foreign resources receive more adverse external shocks than those less dependent on foreign resources. These economies are vulnerable to adverse changes in external variables, such as terms of trade, exchange rate, interest rates, foreign direct investment and supplies of crucial raw materials. However, lacking appropriate economic strategy to manage adverse external shocks can worsen the plight of these economies, making them permanently impotent of reacting to external shocks due to their heavy reliance on external finance. More so, consequence of a scarcity of imported essential inputs, output might fall below or further below the economy's capacity to produce, even with no decline in domestic resources. The situation might be contributed by a decline in the availability of foreign exchange, which determines the economy's purchasing power for imports; a foreign exchange constraint might also impede investment and growth in future capacity if key capital goods, such as machinery and equipment, could not be domestically acquired. Thus, in the medium term to long-term, structural adjustments to external shocks were required to offset the short fall in foreign exchange earnings.

A. MODEL SPECIFICATION

The model employed in this study used the Bacha's approach which was redefined in the work of Martin (2010) to analyze the impact of 1973-2005 external shocks on the LDCs and the range of their policy responses. Current account deficit to GDP, external shock and policy responses were the three (3) major components in Bacha's model.

The model goes thus;

Changes in Ratio of Current Account Deficit to GDP = Changes in External Shocks – Changes in Policy Responses + Error Term …… *(1)*

Considering this, to analyze the effect of external shocks on the responsiveness of fiscal measures in Nigeria, the Bacha's model was modified in order to achieve the objectives of this study.

Thus;

National income output (GDP) = External shocks - Fiscal measures + Error Term …… *(2)*

From the literatures, World oil price, Oil output, Exchange rate, External reserve, External finance among others were identified by Clemmemnts, Flores and Leigh (2009); Capistran and Cuadra (2011) among others as external shocks or factors variable that can influence fiscal measure of an economy. Moreso, fiscal measures instruments as defined and identified by Dixit and Lambertini (2003); Angelopoulos, Malley and Philippopoulus (2007) and Sushil (2015) are Government spending's/expenditures, Taxes, Government revenue and government debt/borrowings.

However, for the bases of this study which is on Nigeria who largely depends on the proceeds from oil for her main source of revenues, these variables; World oil price (WOP), Exchange rate (EXR), and External reserve (ERS) were considered as external shocks factors to the economy while fiscal measure variables are Government spending/ expenditures (GE) and Government revenue (GR). National income output (GDP) was included because is a key macroeconomic variable showing the general economic performance and is included also to control the cyclical components of government fiscal measures.

Therefore;

GDP = [WOP, EXR, ERS] - [GE,GR] + Error Term --- (3)

B. ESTIMATION TECHNIQUES

This paper employed the use of the Vector Autoregressive (VAR) model. Vector Auto-Regression (VAR) is an econometric model of stationary time series in which the equation has the same right-hand side variables consisting of endogenous variables and the lagged values of all endogenous variables in the system. The VAR methodology superficially resembles simultaneous equation modeling in that it considers several endogenous variables together and the VAR use less prior information (Gujarati & Porter, 2009). VAR is used to investigate the external shocks or effects on the endogenous variables using the impulse response function. All variables in

a VAR are treated symmetrically by including each variable and its own lags and the lags of all the other variables in the model and without priori distinction between the endogenous and exogenous variables (Gujarati & Porter, 2009).

Thus, constructing our VAR model from the model specified, the endogenous economic time series at four lags are considered and the endogenous linear equations can be explicitly specified.

$$A_oY_t = \alpha + A_1Y_{t-1} + A_2Y_{t-2} + \ldots\ldots + A_pY_{t-p} + £_t \quad \text{--------} \ (4)$$

Where;

Y_t represent a vector containing numbers of endogenous variable and (nx1) dimensional vector that is,

Y_t = [WOP,EXR,ERS,GE,GR,GDP] ------ (5)

α is the deterministic variable constant

A_0, A_1, A_2 ….. A_p are the parameter matrices of the order n x n dimension, it represents contemporaneous relations between the components of $\mathbf{Y_t}$ called coefficient matrix.

$£_t$ is called white noise, is nx1 dimensional vector of structural shocks or innovation in policy and non-policy variables with variance-covariance identity matrix ($E£_t£_t = 1$).

The endogenous variable matrix can be present further below

$$\begin{vmatrix} WOP \\ EXR \\ ERS \\ GR \\ GE \\ GDP \end{vmatrix} \begin{vmatrix} a_{11} & a_{12} & a_{13} & a_{14} & a_{15} & a_{16} \\ a_{21} & a_{22} & a_{23} & a_{24} & a_{25} & a_{26} \\ a_{31} & a_{32} & a_{33} & a_{34} & a_{35} & a_{36} \\ a_{41} & a_{42} & a_{43} & a_{44} & a_{45} & a_{46} \\ a_{51} & a_{52} & a_{53} & a_{54} & a_{55} & a_{56} \\ a_{61} & a_{62} & a_{63} & a_{64} & a_{65} & a_{66} \end{vmatrix} \begin{vmatrix} U^{WOP}{}_t \\ U^{EXR}{}_t \\ U^{ERS}{}_t \\ U^{GR}{}_t \\ U^{GE}{}_t \\ U^{GDP}{}_t \end{vmatrix} = \ldots (6)$$

U_{it} are uncorrelated white noise disturbances. For example, a_{14} represent the impulse response of world oil price shock on government revenue, a_{25} represent the impulse response of exchange rate shock on government expenditure and so on.

C. SOURCES OF DATA

The data used in this paper is a group of selected economic and financial indicators in Nigeria from already processed data (secondary source of data), CBN (central bank of Nigeria) statistical bulletin (2016), CBN annual reports and OPEC online data base. The major limitation of this paper is the inaccuracy and inconsistency associated with data generated from Nigeria agencies. This is because data generation and processing is still at its fancy in Nigeria.

IV. EMPIRICAL RESULTS

The section of the paper presents the result and interpretations of the analyses. The empirical analysis of the study began by examine the stationary (unit root test) of the variables in the model, and then followed by the VAR (Vector autoregressive) estimation technique.

A. UNIT ROOT TEST RESULTS

Variable	Augumented Dickey Fuller Test	1% Level Critical value	5% Level Critical value	Probability value	Level of Integration
WOP	-5.219697	-3.752946	-2.998064	0.0003	1(1)
EXR	-4.341122	-3.752946	-2.998064	0.0026	1(1)
ERS	-3.769597	-3.562965	-3.004861	0.0157	1(2)
GR	-4.746568	-3.752946	-2.998064	0.0010	1(1)
GE	-6.168052	-3.788030	-3.012363	0.0001	1(2)
GDP	-7.625044	-3.808546	-3.020686	0.0000	1(1)

Source: Author's computation.

Table 4.1: ADF Unit Root Test

The Augmented Dickey Fuller (ADF) Unit root test on the above table shows that most of the variables were stationary at their first difference expect for external reserve (ERS) and government expenditure (GE) which were stationary at their second difference. However, the result revealed the ADF value is greater than the critical t-value at 95% level of significance for five (4) of the variables (WOP, EXR, GR and GDP) at their first differenced, 1(1). The implication of these is that any shock on World Oil price, Exchange rate, Government Revenue, and Gross domestic product may only be sustained for a short period of time while shock on external reserve and Government expenditure will be sustained over a longer period of time.

B. VECTOR AUTO REGRESSION (VAR) RESULT

	WOP	EXR	ERS	GR	GE	GDP
WOP (-1)	0.687907	-0.019515	458.2054	-4539.413	-8.748458	-4539.413
WOP(-2)	-0.811115	0.567268	-134.5000	8703.585	-14.04792	8703.585
EXR(-1)	1.327422	-0.055416	478.9359	1247.762	15.68905	1247.762
EXR(-2)	0.089338	-0.143294	-480.6463	-6129.176	-6.148458	-6129.176
ERS(-1)	0.001046	-0.000501	0.618050	2.653573	0.024980	2.653573
ERS(-2)	0.000333	-0.000160	-0.660775	-26.21028	0.007788	-26.21028
GR(-1)	4.360005	-6.150005	0.27727	0.5411574	-0.000296	0.541574
GR(-2)	1.920005	-1.960005	0.008629	0.419792	0.000998	0.419792
GE(-1)	-0.005232	0.026064	3.439826	414.8702	-0.073271	414.8702
GE(-2)	-0.012154	0.016309	-15.04604	-8.172272	0.746328	-8.172272
GDP(-1)	-0.000916	0.001356	1.928546	0.261665	0.067249	36.80109
GDP(-2)	-0.000308	-0.003244	-0.660059	0.523238	-0.036964	-64.23265
C	17.85816	-11.18322	-3299.121	1501.140	374.9246	-43785.18
R-squared	0.979508	0.997057	0.980166	0.995729	0.990994	0.737992
F-statistic	39.83196	282.3265	41.18169	194.2829	91.69895	2.347235

Source: Author's computation.

Table 4.3: VAR Result

The endogeneity property of the variables was portrayed in the table (4.3) above, and this also indicated a strong relationship amongst the endogenous variables. From the coefficient of multiple determinate (R^2) and the value of the F-statistics, it could be concluded that WOP (World oil price) with R^2 of 98percent, EXR (Exchange rate) with R^2 of 99percent, ERS (External reserve) with R^2 of 98,percent, GR (Government revenue) with R^2 of 99percent and GE

(Government expenditure) 99 percent R^2 are more endogenous that is are systematically affected more by changes in other variable of the system than GDP (Gross domestic product) R^2 of 73percent, these simply implied that the values of WOP, EXR, ERS, GR and GE are been determined by the states of other variables within the system or by one of the functional relationships in the model. The World oil price (WOP) exhibited negative [-0.000975(-1) and -0.003082(2)] insignificant relationships between the GDP in the first period and second period, as well as Government expenditure [-0.005232(-1) and -0.012154(-2)] in the first and second periods. The Nigerian Government revenue (GR) was positively impacted by world oil price (OIL) in the first period and second period (4.360005 and 1.920005 respectively) but only the impact in the first period was significant. The World oil price impacted positive to the External reserve (ERS) of Nigeria both in both periods as revealed. From the result, it could be seen that Exchange rate and External reserve have positive insignificant relationship with GDP in period 1 and negative relationship in period 2 as both pointed to same directions in both periods. The Nigerian external reserve (ERS) has impacted positively to Government revenue (GR) in all both concessions, also is the relationship between Exchange rate (EXR) and Government expenditures (GE). Government revenue (GR) and Government expenditure (GE) both had positive impact on the GDP in the period 1 but the relationship could not be sustained longer to second period where the impact became negative (-64.23265 and -0.036964 respectively). The impulse response analysis was employed further to reveal more findings.

C. IMPULSE RESPONSE

The impulse response analysis traced the effect of one standard deviation shock to one of the innovation on current and future values of the endogenous variables that is, the impulse responses tell us how macro variables respond to shocks in the policy variables.

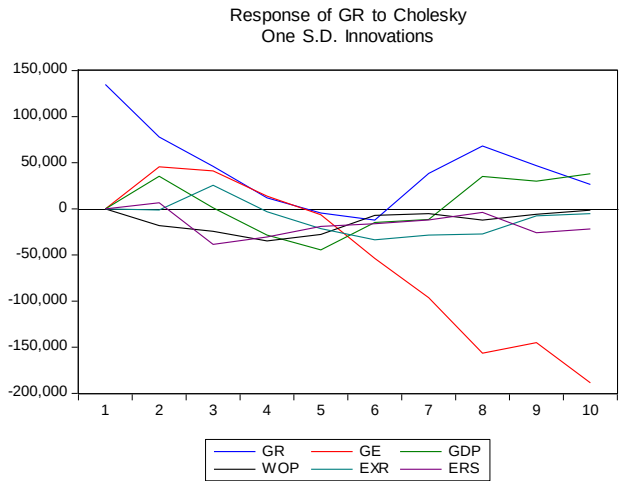

Table 4.4A: Response of GR

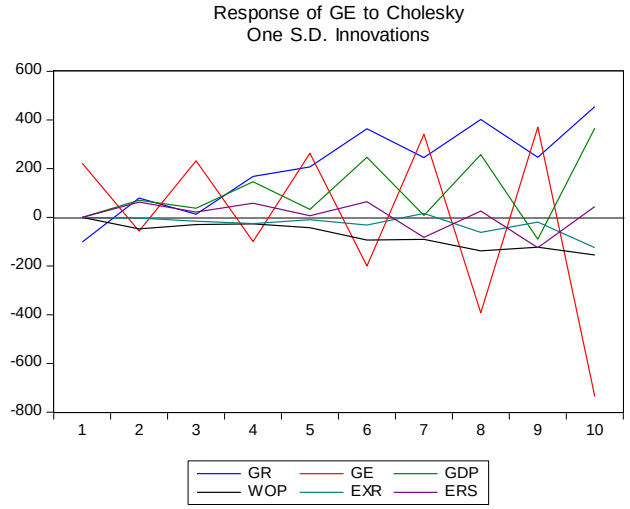

Table 4.4B: Response of GE

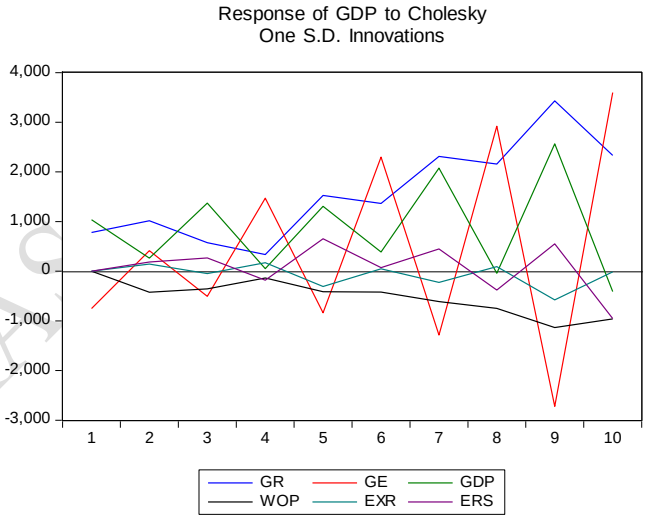

Table 4.4C:bResponse of GDP

The shock responses of fiscal measures (Government expenditures, Government revenue and National income output (GDP)) to the identified external shocks namely; World oil price, Exchange rate and External reserve are reported in the tables above (Table 4.4A, 4.4B and 4.4C). The response forecast period of ten (10) years was to enable us capture both the long term and short term shock responses. The responses of the economic performance indicator (GDP) to shock from world oil price have depicted negative and positive response behaviors over through the years both in the short run and long, which indicate that Nigeria economic performance is actively responsive to the shocks in world oil price this was in line with the findings of Aremo, Orisadare and Ekperiware (2012). The Nigerian external reserve (ERS) have positively affected the performance of the economy (GDP) all through the short term to the long term periods, this was an indication of how helpful the Nigeria external reserve have being to the survival of the economy in recent times, the GDP had more positive responses to shock in exchange rate than negative response as revealed in the result. The shock to World oil price (WOP) innovation has a more profound negative effect on government revenue (GR) than government expenditure (GE) in other words, World oil price shock produced more significant reduction in government revenue than government

expenditures, it was revealed that all through the periods the responses of the Nigeria government revenue to shocks in world oil price have been negative revealing the vulnerability of the revenue of the government which have made the government to result to borrowing at most times and thereby operating fiscal deficit year- in- year- out. The Government expenditures have responded positively to External reserve (ERS) shock than its responses to exchange rate (EXR), throughout the short periods to the long periods it has shown to be positively influenced by external reserve. More so, government revenue (GR) shows to have responded positively to shocks in exchange rate (EXR) only in the short run while its responses were negative in the long run.

V. CONCLUSION AND POLICY RECOMMENDATIONS

The study examined the responsiveness of fiscal measures variables to various external shocks identified; it assessed the effect of external factors on the national income output in Nigeria and examined the extent external shocks on the revenue accrued to Nigerian government over the years. This study revealed that the world oil price shock affected the economic performance indicator (GDP) negatively and positively both in the short run and long run, depicting prominent fluctuation behaviors. The vector auto regression (VAR) and the Impulse response analysis further established the relationships amongst the variables exhibits some unique characteristic which, in some cases, negate prior theoretical expectations, but depicts the structural fundamentals of the Nigerian economy as the economy response to world oil price shock having a distortionary impact on the Nigerian economic growth, the government revenue, government expenditures , the exchange rate with the concurrent depreciation of the Naira and depleting external reserve .

The findings of the paper is actually an evidence of the current situation of the Nigerian economy where the drilling world oil price is currently having a hard one of the nation, where government revenue and expenditures are being seriously affected, making it difficult for the governments at various level to meet up with their promises, obligations, responsibilities and viable fiscal measures that can stand the current the external shocks ravaging the economy. The economy is gradually moving towards recession. The Nigerian economy is very vulnerable to external shocks, this paper therefore concluded that the Nigeria economy and her fiscal measures did not responded favorably to the shock from external factors identified in the study.

Based on the findings of this study and the objectives achieved, this study therefore recommends that the diversification of the economy as it has also been suggested in several studies (see Obinyeluaku and Viegi (2009); Aremo, Orisadare and Ekperiware (2012) and others), economic diversification is a good solution that should be taking serious now by the current government of President Buhari and states government to avoid the continuous external disturbance caused by the external factors on economic performance and fiscal measure instruments of government.

Encouraging competitive exchange rate should be welcome, pegging of exchange rate should be discouraged, excessive devaluation of the currency (Naria) or appreciation might adversely affect gross output. The real sector of the economy might not be able to cope with such exchange rate and this could lead to decline in National income output.

The Nigerian external reserve has impacted positively on government revenue, government expenditure as well as performance of the economy (GDP). The Nigerian external reserve should be replenished so as to save for the difficult times and as not to go empty, withdrawal from the external reserve should be limited and money withdrawn from it should be used meritoriously for capital projects that could mainly help revamp other key sectors of the economy because is the only external factor among the ones identified that have positive shock responses on fiscal measures and economic performance indicator. Fiscal prudency is the message that this preaches and the Nigerian economy is not well poised to adjust to different external shock.

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