NAIRA EXCHANGE RATE CHANGES AND NIGERIA'S NON-OIL SECTORAL OUTPUT PERFORMANCE

IJIEH, Sunday **O**kubor PhD[1]; **IMIDE**, **I**srael **O**nokero PhD[2]
and **AZU**, **B**enedict **C**hioma PhD[3]
Department of Economics, University of Delta, Agbor, Nigeria
*Correspondent author's E.mail: ijiehsokubor@gmail.com
E.mail:imide64@yahoo.com E.mail:aibenzc@yahoo.com

Abstract
This study investigates the influence of real exchange rate on the non-oil output performance of the Nigerian economy covering the period 1986 to 2019. The study applied the OLS in a modified IS-LM framework. The result indicates that there is inverse relationship between non-oil output and exchange rate in the long run and direct relationship in the short run. The ECM result show that deviations from long run equilibrium could be easily adjusted. The implication of findings is that policy makers must consider achieving a stable and realistic exchange rate in order to influence a stable long run output performance. The study recommends the inclusion of foreign investments in agriculture, manufacturing and service sectors to capture external influences on non-oil output as naira depreciates or appreciates

Key Words: Exchange Rate; Non-oil output growth; Government Expenditures.
***JEL classification**: F41, F43, H50.*

1.0 Introduction

The idea of a clean energy placed a challenge on energy scientists to identify the best alternatives to fossil fuel. This factor coupled with current world energy politics and covid -19 pandemic upheavals has placed the oil market on the path of weak trend, which is not conducive for revenue generation to achieve sustainable economic growth. This trend has renewed the urgency for diversifying the country's export base, from oil to non-oil. Former diversification policies (efforts) were targeted at the achievement of high export growth rate as documented in the Nigeria's Export Incentives and Miscellaneous Provisions decree of 1986. Though, targeted at high export growth rate, these policy efforts were constrained by several factors, chief among them include changes in Naira exchange rate, low investment in non-oil sector and variations in relative pricing, in addition to several unproductive non-economic government policies. Factors such as poor investment in non-oil sector were due to increases in the world oil market prices over the last decades. As oil price move up, non-oil output growth exhibited a show of decline relative to total GDP. This had an inverse effect on cocoa, cotton, and rubber production, to the extent that most plantations were cleared for subsistence agriculture. By the close of the 1980s export of groundnuts, rubber, timber, cocoa, cotton, hides and skin among others has disappeared into history.

Generally, oil created disincentives for non-oil productions through its impact on factor prices, exchange rates and rising wage in the public sector. As world oil price show an increasing trend, the naira exchange rate experience appreciation and non-oil output

declines. The rise or fall in exchange rate affects non-oil production through labour wages, and other factor inputs which adversely affects the competitiveness of exports of goods in the international non-oil markets. The relationship between output growth and exchange rates is quite important for developing economies due to its place in production and as an engine of trade flows. The essence of exchange rate policies is to correct imbalances, enhance competitiveness and increased revenues. To this extent, the main policy thrust of foreign exchange policy is derived from the broad macroeconomic objectives to achieve internal and external balance in an economy within the shortest possible time. Internal balance according to Adewuyi, (2005) refers to the level of economic activity consistent with the satisfactory management of inflation, while external balance refers to balance of payment equilibrium. In the midst of other variables, exchange rate policy in any given country has been frequently identified as a major factor in explaining the general adverse macroeconomic condition.

Exchange rate fluctuations influence domestic prices through their effects on aggregate supply and demand. Import competing firms might increase prices in response to foreign competitor's price increase in order to boost profit margins. A great number of Nigerian producing firms depend on imported factor inputs in form of equipment, plants and machineries, chemicals among other materials. It can therefore be argued that a sound exchange rate policy and an appropriate rate are crucial conditions for improving the economic performance of the country. Mohammed (2013) explained that the risks associated with frequently changing exchange rates are major impediments for countries striving to grow and develop by expanding export products outside the **oil** sector.

The basic problems under review show that countries with vast natural resources endowments face more hurdles in the development process than countries with fewer natural resources (lack of abundance), according to Hassanov and Samadova (2011). The point at issue is, resources endowed countries periodically enjoy windfall revenues which results in some cases to undesirable consequences such as the Dutch disease. The study of Corden (1984), explained that under Dutch disease, the appreciation of a country's real exchange rate caused by rise in the export of a booming resource sector, draws capital and labour away from other sectors of the economy such as manufacturing and agriculture. This leads to decline in the productivity of the non-oil sectors. Appreciating exchange rate enhances oil production at the expense of non-oil production for export. However, in addition to the Dutch disease influence on growth and development on the non-oil sectors, the weak trend of oil market is often due to "the clean energy challenge", politics and covid-19 pandemic upheavals which are not conducive for generation of oil revenue necessary to support sustainable economic growth and development of the nation. In order to stimulate the non-oil production for export (revenue), the major focus of the naira exchange rate policy must be targeted at producing competitive output and prices through abolition of export licenses, retention of foreign currencies and repatriation of profits. Besides these incentives, the economy may continue to depend on oil for foreign exchange revenue without any significant increase in agriculture and manufacturing sector's output, keeping the nation underdeveloped.

The basic aim of this study, seek to investigate the non-oil sector output responses to exchange rate changes in Nigeria. The specific objectives are to determine; (a) exchange

rate effect on non-oil output growth performance and (b) the nature of impact of non-oil sector government expenditures on gross domestic product performance.

2.0 Literature Review

Exchange rate refers to the price of one unit of (domestic) currency in terms of another (foreign) currency. Exchange rate plays a key role in international transactions. It is the major connecting link between the price systems of the world economies (Anyanwu & Oaikhenan 1995). The non-oil production implies commodities produced that are not relating to petroleum (crude oil) such as; Services, Agricultural and Manufacturing products. Services here imply educational, health, construction and economic services. Economic growth refers to steady increases in real gross domestic product or national product over time.

2.1. An Overview of Exchange Rate Policies in Nigeria

The essence of exchange rate reform is to stimulate exports growth over imports in order to achieve higher economic growth. Some scholars such as Taye (1999) and Adewuyi (2005) believe that exchange rate depreciation promotes export expansion and ease out balance of payments difficulties through increases in the relative prices of imports and making export products more competitive and attractive in production. On the other hand, Anyanwu & Oaikhenan (1995) argue that exchange rate changes have no effect on real variables in the long run. They are of the view that exchange rate changes affect real magnitudes through real balance effect in the short run, but leaves all real variables unchanged in the long run.

Revenues generated from the non-oil production powered the Nigeria economy from independence to the end of the civil war. As oil becomes prominent, the percentage contribution of non-oil to GDP dropped from 100% to 73% by 1971. The non-oil contribution further dropped to 40.07% by 1973 as an after effect of the oil politics of the Arab/Israeli war. The non-oil contributions to total GDP by 1981 and 1991 stood at #4.73 Billion and #18.33 Billion, representing 35.6% and 18.15% impacts respectively. Its impact further dropped to 16.5% in the year 2000 and 14.43% and 11.56% in the year 2004 and 2006 respectively. By 2016 the sector had an all-time high contribution of 52.04% to total GDP. This was so because crude oil price crashed as most European countries were resorting to electric and solar energy sources. However, the percentage contribution to total GDP further dropped to 49.13% by the end of 2020. Ever since, agricultural contributions to total GDP started to dwindle at an average annual rate of 2.2% (Adewuyi, 2005). As petroleum price soared, crude oil production gained prominence among revenue sources and became a major point of reference in the national gross domestic production. Manufacturing and the service sector on the other hand, contributed minimally in relation to oil. The Non-oil sectors offer varied opportunities for development of Nigeria beyond oil with respect to the downward trend of oil prices in recent times. Export of non-oil products is very vital for the nation as it has opportunities to diversify production into high technology. Be that as it may, Mkpado (2013) also observed that non-oil sector is overlooked as sources of export diversification in policy making.

Exchange rate in Nigeria has gone through fluctuations between two regimes namely: the fixed and the flexible regimes. At independence, there was a fixed exchange rate

arrangement in which currencies were linked to gold, but crashed with the Britton woods system in the early 1970s. Following the collapse of the Britton woods system many African economies took to free float and tied their currency to Special Drawing Rights. Nigeria operated the fixed exchange arrangement in line with the IMF per value system. Thus, the Nigerian currency was pegged at par to the British pound Sterling, and later to the dollar in the basket of currencies. The Nigeria's Pounds was changed to Naira in 1973. The naira exchange rate at this point facilitated the importation of factor inputs needed for construction and development projects. This importation triggered the erosion of the country's external reserves. By the end of 1970s, the nation's total GDP growth rate started to decline at an average of 2.96% into the 1980s. Mohammed (2013) explained that various policies were put in place to reverse this trend but to no avail.

The failure of these macroeconomic policies prompted the Nigerian Government to adopt the Structural Adjustment programme (SAP) in 1986, with the major aim of achieving a realistic exchange rate. To further enhance this objective, the Second-Tier Foreign Exchange Market (SFEM) was introduced to enhance the determination of the value of the overvalued naira. To boost the performance of SAP, the dual exchange rate polices was introduced. The hardship that accompanied this policy prompted the government to reintroduce the foreign exchange regulation with the official rate pegged at #22 to the dollar. This policy was short lived with the introduction of the Autonomous Foreign Exchange Market (AFEM) in March, 1995 with the promulgation of Decree17 and the abolition of exchange control act of 1962. During AFEM regime, the CBN was stipulated to intervene in the market at short notice to stem market failure. Despite the huge amount of foreign exchange which the CBN supplied at various intervention points to the foreign exchange market, the impact was not reflected in the performance of the non-oil sector of the economy. This development necessitated a change in policy by July 2002, when the demand pressure in the foreign exchange market mounted and resulted in further depletion of Nigeria's external reserves level.

Based on the above, the CBN introduced the Dutch Auction System (DAS) to replace IFEM. This time it was designed to achieve a realistic exchange rate by stemming the excessive demand for foreign exchange and conservation of the external reserves. This market regime was made up of two parties comprising of the CBN and the Authorized dealers who were responsible for buying and selling of foreign exchange. The CBN in this arrangement determines the amount of foreign exchange to sell at the amount the dealers are willing to buy. This regime enhanced the relative stability of the naira, with respect to the dollar as it caused the naira to fluctuate within a single digit band.

2.2. Empirical Literature

The stability or volatility of a nation's foreign exchange rate is an important variable in explaining an economy's financial position. Theoretical literature shows that exchange rate volatility has economic costs on productivity and consumption of non-oil products through pricing. This has attracted scholars' attention and made governments to monitor the exchange rates of domestic currency. For instance, Hasanov and Samadova (2013) carried out an investigation on the impact of the real exchange rate on non-oil exports in Azerbaijan using Vector Error Correction Model. Their result suggests that real exchange rate has negative impact on non-oil export performance. In the Nigeria scenario, Adewuyi (2005) examined the impact of exchange rate on macroeconomic aggregates

on the economy. Employing annual time series data, they examined the possible relationship between the real exchange rates and GDP growth using simultaneous equations and vector autoregressive model. Their results show that there is no direct relationship between the real exchange rate and GDP growth.

Anifowose, (2021), applying the Non-Linear Autoregressive Distributed Lag Model (NARDL) approach to examine asymmetric relationships on the effect of exchange rate on economic growth in Nigeria, found that in the long-run, economic growth is positively affected by positive shocks to exchange rate. Also. Ribeiro, McCombie, and Lima (2019), examined the relationship between real exchange rate and economic growth in 54 developing countries. The empirical result showed that the impact of real exchange rate on economic growth in developing countries was negatively signed.

In their study, Adelowokan, Adesoye and Balogun (2015) examined the relationship between exchange rate volatility on investment and economic growth in Nigeria, the study found exchange rate to exhibit negative relationship with investment and growth. Khandare (2017) empirically assessing the exchange rate and economic growth nexus for the Indian economy. The study found that both exchange rate and interest rate exert statistically insignificant negative effect on Indian economy. Bakare (2011) employed the ordinary least square regression method to investigate the consequences of foreign exchange reforms on the performance of non-oil private investments in Nigeria. His result showed a significant but negative relationship between foreign exchange rate and non-oil private domestic investment in Nigeria.

Yaqub (2010) in his study examines the exchange rate volatility and output performance in Nigeria. Adopting the modified IS-SM Framework he estimated the behavioural equation using SUR technique on data generated from CBN for the period 1970 – 2007. The results obtained indicated that exchange rate had significant contradictory effects on agriculture and manufacturing sectors. Anthony, Jonathan, Chiamaka and Onyinye (2018) in their study, examined exchange rate movements and the manufacturing sector of Nigeria for the period 1981 to 2016. The study revealed that exchange rate, government expenditure, and foreign direct investment have positive relationship with manufacturing output.

More so, Ogunmuyiwa and Adelowokan (2018) measured the impact of exchange rate on industrial output in Nigeria from 1986 to 2016, using industrial output and exchange rate data from CBN. The result showed that exchange rate has a significant positive effect on industrial output in Nigeria. Akinlo and Adejumo (2014) investigate the impact of exchange rate volatility on non-oil exports in Nigeria, between 1986 and 2008. The results show that exchange rate volatility and foreign income have significant positive effects on non-oil exports in the long run. Their result further shows that imports have a statistically negative effect on exports in the long run.

Gaps in Literature

From the reviewed studies concerning the Nigerian economy, literature concentrated on the effects of exchange rate on one sector or aggregate trade performance with respect to balance of trade such as the study of Oladipupo, and Onotaniyohuwo (2011). They are block analysis and did not separate the long-run from the short-run. To this extent, this

study covers the long-run and short-run effects of exchange rate changes on non-oil disaggregated sector output. This variant is important because contributions of non-oil sector output to total gross domestic product (GDP) in terms of civil welfare, employment and revenue generation varies. The outcome is expected to have enormous implications for economic growth and performance of the nation.

3.0 Research Materials and Methods

3.1. Theoretical Framework

The theoretical framework for this study as adapted from Kandil (2004), is the modified IS-LM framework. In this framework, output is assumed to be determined in three markets within the economy. These consist of the goods market, the money market and the foreign exchange market. All three must simultaneously be in equilibrium for an economy to be in equilibrium. The achievement of this equilibrium is the objective of exchange rate management. Following Yaqub (2010) the equilibrium equation condition in the goods, money, and external sectors could be summarized as follows: $Y_t = \alpha_0 + \alpha_1 E_t + \alpha_2 I_t + \alpha_3 M_t + \alpha_4 G_t$ - - - - - - - - - - (1) Where: Y = output; E = exchange rate; I = Real Investment; M = net export; G = government expenditure. From equation (1) a change in exchange rate affects output directly through import and export, and indirectly by changes in income due to changes in exchange rate. The effect of exchange rate depreciation on output depends on the elasticities of imports of factor inputs and exports of commodities. The strength of the income elasticities of import and export on the other hand, determines the effect of exchange rate depreciation (appreciation). Where the elasticity of export with respect to income is greater than the elasticity of import with respect to income may have positive response, otherwise negative.

3.2. Model Specification

This study adapts Yaqub (2010) and Hassanov & Samadova (2013) and modifies equation (1) to accommodate sectoral representations in order to model the output equations for the various sectors selected for the study (Manufacturing, Agriculture, and Services). Beginning the specification with the functional form for the impact of exchange rate on non – oil sector output of the Nigerian economy we present the following:

$$GDP = f(EXT, GEA, GMF, GSV) \text{ - - - - - - - - - - - - - (2)}$$

Where; GDP = Non oil Sector GDP; EXT = Real Exchange Rate; GEA = Government Expenditure on Agriculture; GMF = Government Expenditure on Manufacturing; and GSV = Government Expenditure on Services. Non-oil Output is also expected to respond positively to government expenditure. All variables are expressed in their logarithms.

3.2.1. Agricultural Sector Output Specification

Beside weather conditions, agricultural output is a function of the theoretical form of equation 1 as specified above. The sector's output equation could be specified in a linear form as follows. $GDP_a = \beta_0 + \beta_1 EXT + \beta_2 GEA + \beta_3 GMF + \beta_4 GSV + U_1$ - - - - - - - (3)

Where; GDP_a = Agricultural Sector contribution to Non-Oil Output

3.2.2. Manufacturing Sector Output Specification

This specification is a modification of equation 3 by including government capital expenditure as a proxy for imports of manufacturing inputs. This is because importation

of factor inputs affects manufacturers output. The sectors output equation hence could be specified as follows: $GDP_m = \beta_0 + \beta_1 EXT + \beta_2 GEA + \beta_3 GMF + \beta_4 GSV + U_1$ - - - - - - (4)

GDP_m = Manufacturing Sector contributions to NON-oil Output

3.2.3. Services Sector Output Specification

The basic equation is modified by government non- oil capital expenditure other than those on manufacturing and agriculture. Hence, we include capital expenditure on social and economic services, finance, banking, building and construction. The service equation can be specified as:

$GDPs = \beta_0 + \beta_1 \beta_1 EXT + \beta_2 GEA + \beta_3 GMF + \beta_4 GSV + U_1$ - - - - - - - (5)

Where; GDPs = Services Sector contributions to NON-oil Output

Finally, by modification, following Yaqub (2010) and Hassanov & Samadova (2013) output equation we modify and rewrite equation 1 in log linear terms with respect to equation 3, 4, & 5. The reduced form of the equations expressed in natural log form to

explain the effect of exchange rate on non-oil output is presented as:

$LogGDP = \beta_0 + \beta_1 LogEXT + \beta_2 LogGEA + \beta_3 LogGMF + \beta_4 LogGSV + U$ - - - - - - (6)

Where: LogGDP = Log of Total non-oil Gross Domestic product; LogGEA = Log of government expenditure on Agriculture; LogGMF = Log of government expenditure on Manufacturing; LogGSV = Log of government expenditure on Services

3.2.4. The Error Correction Mechanism (ECM)

From equation 6, the ECM can be specified as follows:

$LogGDP = \beta_0 + \beta_1 LogEXT + \beta_2 LogGEA + \beta_3 LogGMF + \beta_4 LogGSV + \beta_5 ECT_{t-1} + U_t$ - - - (7). *Where*, ECT_{t-1} is the error correction term. The parameter β_5 measures the speed of adjustment to the equilibrium and is expected to be negative ($\beta_5 < 0$).

3.3. Estimation Procedures

All the variables in the model are expressed in their logarithm format. The data frequency covers the period between 1986 to 2019 and were obtained from the CBN Statistical Bulletin, CBN Annual Report and Statement of (various years). In order to examine the impact of the selected variables on non-oil GDP performance, the study followed a four-step procedure.

4.0 Presentation and Analysis of Results

First, the data series were tested for stationarity using the Augumented Dickey-Fuller (ADF) test. All variables are found to be integrated of same order $I(1)$ as shown below

Table 1: Results of Unit Root Test for Variables

VARIABLES	LEVEL	FIRST DIFF	5% CRIT	1% CRIT	ORDER OF INTEGRATION
GDP	-0.916	-3.94	-2.88	-3.49	I (1)
EXT	-0.636	-11.28	-2.88	-3.49	I (1)
GEA	-1.720	-10.70	-2.88	-3.49	I (1)
GMF	-1.516	-11.068	-2.88	-3.49	I (1)
GSV	-0.966	-8.905	-2.88	-3.49	I (1)

SOURCE: Authors compilation from E-views output

The ADF test statistics were compared against the Mackinon critical values at 5% and 1% level, the result show that all variables are stationary. Having established the order of integration of the variables we applied the Johansen (1988) technique to determine whether there exists a long run linear equilibrium. Next, we tested for long run relationship using the Johansen Cointegration testing procedures. Following this is the estimation of the long run equation and finally the ECM model. The Johansen Cointegration test result is presented below:

Table 2. Cointegration Test Results

Unrestricted Cointegration Rank Test (Trace)					Unrestricted Cointegration Rank Test (Maximum Eigenvalue)		
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 CritValue	Prob.**	MaxEigen Statistic	0.05 CritValue	Prob**
None *	0.356145	90.41593	69.81889	0.0005	47.55045	33.87687	0.0007
At most 1	0.186273	42.86548	47.85613	0.1359	22.26214	27.58434	0.2072
At most 2	0.136075	20.60334	29.79707	0.3828	15.79713	21.13162	0.2369
At most 3	0.043427	4.806215	15.49471	0.8291	4.794955	14.26460	0.7675
At most 4	0.000104	0.011260	3.841466	0.9152	0.011260	3.841466	0.9152

Trace test and Max-eigenvalue test indicates 1 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: Authors compilation from E-views output

The test result as presented in above Table, examines the joint movement of the variables in the long run. The estimation results provide evidence of statistical long run equilibrium between non-oil gross domestic products (GDP), real exchange rate (EXT), government expenditure on agriculture (GEA), government expenditure on manufacturing (GMF), and government expenditure on services (GES) in the Nigerian economy. From the result, both the trace and the Max-Eigen test statistic(s) indicate that there is one cointegrating equation at the 5% level of significance. The result show that the null hypothesis of no cointegration (None) can be rejected using either the λ-Trace or λ-Max

statistic. Both statistics are greater than the Mackinnon critical values. The reported PV of 0.0005 and 0.0007 for λ-Trace and λ-Max statistics which is less than 5% is also confirmation of the cointegrating relationship. Similarly, the null hypothesis of 'At most 1' and 'At most 2' cannot be rejected as λ-Trace (42.86) and λ-Max (22.26) statistics are less than their Mackinnon critical values of 47.856 and 27.584 respectively. Again, the PV's of both instruments are not significant in explaining the null hypothesis. Hence, we accept the alternative hypothesis of at least the presence of 'At most 1' cointegrating equation(s). These results indicates that there is a cointegrating relationship between non-oil GDP, Real exchange rate, Government expenditure on agriculture, Government expenditure on Manufacturing and Government expenditure on Services.

Table 3 Result of Long Run Cointegrating Equations

Cointegrating Equation	**Log likelihood**	**521.8765**		
Normalized cointegrating coefficients (standard error in parentheses)				
GDP	**EXT**	**GEA**	**GMF**	**GSV**
1.000000	**-0.067537**	**0.410896**	**-0.324330**	**-1.473418**
	(0.08161)	**(0.07097)**	**(0.08596)**	**(0.10369)**

SOURCE: Authors compilation from E-views output

The above table, show the cointegration equation which normalize cointegrating coefficients. It indicates that a 1% increase in exchange rate (appreciation) decreases non-oil output productions by 6.75% in the long run, with all other factors remaining constant. Also, a 1% increase in GEA will bring about a 41.09% increase in non-oil production. The result indicates that GMF and GSV have inverse effect with non-oil output in the long run as they influence GDP by 32.43% and 147.34% respectively.

4.1. Long Run Model Estimation Result

Having established the presence of cointegration among the variables of study, we proceed to estimate the long run OLS model (Equation 6) and then generate the residuals for the ECM model (Equation 7) in order to capture the short run behaviour of non-oil production. The resulting coefficients of estimated equation 6 represent long run elasticities. The result is presented as follows:

Table 4. Long Run Regression Result with GDP as Dependent Variable

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	**1.082990**	**0.174854**	**6.193666**	**0.0000**
EXT	**-0.064467**	**0.025107**	**-2.567702**	**0.0116**
GEA	**0.047103**	**0.021746**	**2.166047**	**0.0325**
GMF	**-0.077774**	**0.028739**	**-2.706194**	**0.0079**
GSV	**0.952518**	**0.037088**	**25.68267**	**0.0000**

R-squared 0.9679 Adjusted R-squared 0.9667 F-statistic 808.34
Prob(F-statistic) 0.0000 Durbin-Watson stat 1.7878

Source: Author's compilation from regression output.

The result shows that EXT and GMF have an inverse relationship with non-oil output. GEA and GSV show a direct relationship with nonoil output. This result confirms the cointegrating normalizing equation with the exception of GSV whose sign changed to positive. The result shows that all the estimated coefficients are statistically significant as their PV's are less than 5%. The result indicates that a unit change in EXT and GMF independently with other factors remaining constant will be accompanied by -0.064467 and -0.077774 changes in GDP respectively. Also, a unit increase in GEA and GSV individually, with other factors constant will be accompanied by 0.047103 and 0.952518 increases in GDP respectively. These variables explain over 96.79% variation in GDP. The Prob(F-Statistic) significantly supports this. The reported DW statistic of 1.7878 suggests the absence of autocorrelation.

The residual of the estimated regression output was tested for unit root using the ADF test. The resultant ADF statistic of -3.94 is less than the Mackinnon critical value of -2,88 at 5% level of significant. This with a PV of 0.0025 implies that the residuals are stationary.

4.2. Error Correction Model

The ECM model captures the short run relation between the variables of study and the non-oil GDP. The coefficients of the variables in the regression output represent the short run elasticities, while the coefficient of Error Correction Term (ECT) represents the speed of adjustment from disequilibrium to equilibrium. The estimated ECM model could be presented as follows:

Table 5. Result of Short Run Error Correction Model

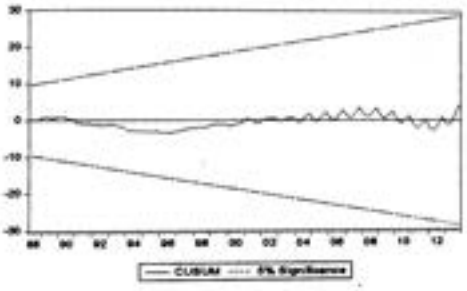
Dependent Variable: D(GDP)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.025065	0.009082	2.759703	0.0068
D(EXT)	0.024585	0.058388	0.421062	0.6746
D(GEA)	-0.005038	0.028008	-0.179863	0.8576
D(GMF)	-0.049424	0.064843	-0.762206	0.4476
D(GSV)	-0.378990	0.207127	-1.829744	0.0701
ECT(-1)	-0.707360	0.087896	-8.047727	0.0000
R-squared	0.485940	Durbin-Wat	1.869641	
Adjusted R-squared	0.461461			
F-statistic	19.85124	Prob(F-Stat)	0.000000	

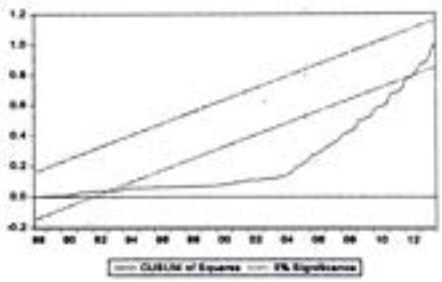
Source: Author's compilation from E-views Output

The result in the table above shows that the value of exchange rate (EXT) has a direct effect on GDP. This suggests that exchange rate depreciation will stimulate non-oil production in the short run. Since the value is small it will require an appreciable depreciation of currency to stimulate a significant effect on non-oil output. This may be explained by the fact that foreign exchange needs other than for non-oil productions domestically crowd out those of non-oil production. This is in conformity with the findings of Omojemite & Akpokojie (2010).

Government expenditures on Agriculture (GEA) is shown to be inversely related to GDP at the short run. Though not significant the sign of the coefficient (-0.005) is at variance with that obtained in the long run. The coefficient of GEA may be negative and insignificant for the fact that government do not spend directly on the business of agriculture, giving room to leakages and corrupt practices within the short run. Again, agriculture needs a long gestation beside other factors. From the result, a unit increase in Government expenditure on Manufacturing (GMF) and Services (GSV) will lead to reduction in non-oil GDP by -0.049424 and -0.37899 units respectively with all other factors remaining constant in the short run. Again, the coefficients are not statistically significant. The one period lagged error correction term (ECT_{t-1}) is negative and statistical which conforms to a'priori expectations. This supports the presence of an equilibrium relationship among the variables. The ECT shows that a deviation from long run equilibrium is corrected by about 0.70736 units (70.74%) in the next quarter ceteris-paribus.

The R^2 suggests that the variables explain 48.59% variations in the non-oil output given an adjusted R^2 of 46.14%. The DW statistic of 1.8686 suggests the absence of autocorrelation in the model. The result of recursive test of stability show a case of relative stability with CUSUM at 5% significance, but show some variance instability with CUSUM of SQUARES as shown.





5.0 Summary, Conclusion and Recommendations

This paper has presented an empirical study of the naira exchange rate changes and Nigeria's non-oil sectoral output performance through three sectoral channels, such as government expenditures on agriculture, manufacturing and services. These Sectors were selected because they are basic requirements for the growth of non-oil production. The findings show that Exchange rate has direct relationship with non-oil output productions in the short run, but indirect significant relationship in the long run. This means that exchange rate depreciation (i.e. increase in nominal value say by 1) will stimulate non-oil production in the short run, while, exchange rate depreciation in the long run, will bring about a reduction in output of the non-oil sectors. The possible explanation of this could be that factor inputs for agriculture, manufacturing and services becomes expensive and discourage domestic investments and production of non-oil products. More so, from the ECM model result, appreciating exchange rate (i.e. decreases in nominal values of exchange rate say by -1 unit) reduces non-oil output (say by 0.0245065 units). Finally, the results show that increases in the value of government expenditure on the non-oil sectors leads to reduction in output as exchange rate appreciates.

The main implication of the findings of this study, is the fact that policy makers must seek to achieve realistic exchange rate always, in order to influence long run non-oil output production. Finally, the inclusion of foreign investments in agriculture, manufacturing and service sectors in further studies should be encouraged to capture external influences on non-oil output as naira depreciates or appreciates.

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