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Research Paper

Effect of Exchange Rate Fluctuations on Manufacturing Sector Output in Nigeria

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ABSTRACT: *The research work examined the effect of exchange rate fluctuations on manufacturing sector output in Nigeria from 1986 to 2014, a period of 28 years. Data sourced from Central Bank of Nigeria (CBN) statistical Bulletin and World Development Indicators (WDI) on manufacturing output, Consumer Price Index (CPI), Government Capital Expenditure (GCE) and Real Effective Exchange Rate (EXC) were analyzed through the multiple regression analysis using Autoregressive Distribution Lag (ARDL) to examine the effect of exchange rate fluctuations on manufacturing sector. Using ARDL it was discovered that exchange rate fluctuations have long run and short run relationship on manufacturing sector output. The result showed that exchange rate has a positive relationship on manufacturing sector output but not significant. However, from the empirical analysis it was discovered that exchange rate is positively related to manufacturing sector output. Therefore, the paper recommended that government should implement the policies on export strategies to encourage exports and discourage imports in order to achieve a favourable balance of payment; government should encourage the use of domestic materials in production in order to encourage international competitiveness and also increase expenditures on economic services such as manufacturing so as to increase their output*

Keywords*: Exchange rate, Manufacturing output, Autoregressive Distribution Lag (ARDL)*

I. INTRODUCTION

The desire of every Less Developing Country like Nigeria is the need to ensure rapid industrialization. This is in the light that industrialization, the process of manufacturing consumer goods and creating social overhead capital is a prerequisite for economic development and an escape route for unemployment, high poverty level, income inequalities, social imbalances while delivering a higher level of welfare, self- reliance, confidence and social harmony for the country and its citizen. It is logical to say that industrialization if correctly harnessed can transform and stabilize a country structurally. For these LDCs, industrialization is seen as a conscious effort of growing the manufacturing sector of the economy. Hence, industrial reforms and policies are tailored to have a strong impact on manufacturing outputs.

In Nigeria, the government and economic experts have emphasized the role that industrialization and manufacturing can play in the structural transformation of the economy. The industrial policy for Nigeria launched in 1988 opined that its major goal is to achieve an accelerated pace of industrial development for the nation making the industrial sector the main source of strength for the economy. Hence, several fiscal, monetary, exchange rate and commercial policies and measures have been adopted to encourage industrialization within the ambit of available resources.

To resolve the bottlenecks and mark a watershed in the evolution of the manufacturing sector of Nigeria; the Structural Adjustment Program (SAP) was embarked on in July 1986 with a primary objective of removing the structural distortions and bottlenecks occasioned by Government controls with the knowledge that foreign exchange rate is a major determinant in the efficient allocation and utilization of scare resources to enhance the flow of capital into a country, stimulating domestic industrial production, promotion of export, create a favourable purchasing power, favourable balance of payment, prices of goods and services, import structure, export earnings, government revenues, external reserves and the ability of local manufacturers to compete with their foreign counterpart.

The problems of the Nigerian economy however is seen as failures of the manufacturing sector-characterized by low level of foreign investment in manufacturing, low capacity utilization, low value added, high production cost, absence of a sound technological base, poor returns, low contribution to Gross National

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Products. The performance of the manufacturing sector since 1986 has been poorly attributed to macroeconomic instability and inconsistence in the exchange rate. The manufacturing sector is weak and heavily import dependent. It is a net user of foreign exchange contributing less than 1% of foreign exchange earnings and utilizing about 64% of foreign exchange earned. The source of concern comes from the structure of our manufacturing sector. It is in the light of the foregoing that this study seeks to evaluate the effects of exchange rate fluctuations on the Nigeria manufacturing sector output from the year 1986 to 2014.

II. THEORETICAL FRAMEWORK AND REVIEW OF LITERATURE

The monetary and traditional flow theory serves as the theoretical basis for this study. The monetary approach to exchange rate determination postulates that the relative supply of the demand for money between two countries is the basis for the determination of exchange rate. It views increase in the supply money as being able to generate inflation, hence, resulting in exchange rate depreciation. The model opines that a situation of falling prices with a given nominal money supply results in exchange rate depreciation while traditional flow model is essentially based on the principle of the interplay of demand and supply. The forces of the market (interaction between demand and supply) determine the rate of exchange. However, when there is speculation or expectation of a change in the rate of exchange, this could lead to the disequilibrium even without any change in the initial determined factors. Exchange rate can adversely affect the ability to import and therefore manufacturing output. Fluctuations in exchange rate will cause instability in purchasing power and hence, negatively impact on investment in import of manufacturing inputs. On the other hand, the effect on manufacturing output and overall income level will also affect investment in import of inputs and invariably the exchange rate. This is because among the determining factors of the rate of exchange are the demand for foreign exchange, the supply itself being influenced by an economy's productivity level.

Nigeria being an import dependent nation particularly for capital goods and considering the centrality of the rate of exchange of such country's currency to her trading partner's currency, a number of writers have expressed their interest and position on this important subject. More recently, Azu and Nasiri (2015) researched on Exchange rate Fluctuation and Sustainable Economic growth in Nigeria and the essence of their research is to ascertain the relationship between real exchange rate and economic development applying those variables that adjudged to make up equilibrium exchange rate thereby defining how interrelated are Real Exchange Rate (RER), Gross Domestic Product (GDP), Export (EXP), Import (IMP), Foreign Exchange Reserve (FER) and Foreign Direct Investment (FDI).

The major aim was to define how exchange rate fluctuation stimulates economic development in Nigeria from 2004 to 2014. Analyzing the data using (vector auto regression analysis) VAR technique, based on the prevailing situation in Nigerian economy within the period of study, one can envisage that RER fluctuation was significantly controlled by positive relation to real import as well as its negative relation to real GDP and foreign direct investment. In as much as the naira is been devalued by the CBN or forces of demand and supply in the foreign exchange market, the research shows that the tendency of increasing FDI would definitely pressurize for the appreciation of the naira, likewise would GDP growth.

Ayodele (2014), analyzed the impact of exchange rate on the economic performance of Nigeria using the Ordinary Least Squares (OLS) method.The study covered the period of 13 years from year 2000 to year 2012.From his findings, exchange rate of naira to dollar has negative correlation with the GDP. Though the Nigeria GDP keeps increasing every year, the negative impact had not allowed the GDP to grow maximally as expected. In fact, the naira exchange to $1.00 is N160.00 at the parallel market instead of the official rate of N158.00. This is as a result of the naira being cheaper has compared to dollar. The demand for dollar has remained so high, hence the increase in exchange rate and ultimately resulting to high cost of imported goods.

According to King-George (2013), the effect of exchange rate fluctuations on the Nigeria manufacturing Sector was set to find out the effect of exchange rate on the Nigeria manufacturing Sector. Hypothesis was stated to guide the study. To evaluate this hypothesis, annual time series data on manufacturing gross domestic product a proxy for economic growth, exchange rate, private foreign investment and manufacturing employment rate were collected from the year, 1986 to 2010. A multiple linear regressions were adopted employing Ordinary Least Square (OLS) techniques. This analysis yielded some interesting results. From the results it was observed that exchange rate has no significant effect on economic growth of Nigeria. Also that dependent variable (Manufacturing Gross Domestic Product) can be controlled by, exchange rate, private foreign investment and manufacturing employment rate. Olufayo and Fagile (2014), their research examined the impact of exchange rate volatility on the performance of Nigeria export sectors, separating the sectors into oil and non-oil sector. They adopted the econometrics method of Seemingly Unrelated Regression (SUR) and in testing the volatility of the exchange rate; they adopted GARCH (generalized autoregressive conditional heteroskedasticity) and examine the effect of floating exchange rate policy on the volatility of the nominal exchange rate. Using the GARCH model, they discovered that there exists volatility in the exchange rate of the country.

Their study established the negative relationship between the volatility of exchange rate and export performance of oil and non-oil sectors using time series data of 1980 to 2011, though it is statistically not significant and also they discovered the significant effect of the floating exchange rate regime in Nigeria ,thus, the introduction of floating exchange rate induces instability in the country exchange rate, this is in agreement with the submission of many scholars, who asserted that the shift from fixed exchange rate to floating exchange rate brought about uncertainty in the exchange rate. More so, the negative relationship between the exchange rate volatility and exports in Nigeria called for drive towards domestication of the country's resources, through inward looking policy that would encourage the local utilization of the country abundant resources and also diversification of the country's exports base.

Opaluwa, Umeh and Abu (2010) examined the impact of exchange rate fluctuations on the Nigerian manufacturing sector during a twenty (20) year period (1986 – 2005). The econometric tool of regression was used for the analysis. Using data from 1986 to 2005, the estimated model used e-views software package.

The finding of this study is that fluctuations in the rate of exchange are not favourable toeconomic activities in the manufacturing sector. It wasdiscovered that the performance of the manufacturingsector was affected by factors such as high cost offoreign exchange for procuring raw materials and machineries required for production, availability offinancial capital, technological underdevelopment,inadequate socio-economic infrastructure, shortage oftechnical manpower and foreign domination; following theimplementation of exchange rate devaluation; themanufacturing sector has not performed any betterbecause of the influence of the earlier mentioned factorswhich affect the manufacturing sector performance.

There is an inverse relationship between exchange ratefluctuations and the manufacturing sector performance.As exchange rate reduced nominally, the exchange valueof the naira appreciates and the manufacturing sectorperforms better. A comprehensive analysis of Nigerian manufacturingsector would indicate that the sector lacks high-leveltechnological contents. The severe infrastructureproblems faced by the country have been singled out as the main factor threatening the sustainability of economicrecovery.

Shehu (2009), assessed the impact of oil price shock and real exchange rate volatility on real economic growth in Nigeria on the basis of quarterly data from 1986Q1 to 2007Q4. The empirical analysis started by analyzing the time series properties of the data which was followed by examining the nature of causality among the variables.

Furthermore, the Johansen VAR-based co integration technique was applied to examine the sensitivity of real economic growth to changes in oil prices and real exchange rate volatility in the long-run while the short run dynamics was checked using a vector error correction model. Results from ADF and PP tests show evidence of unit root in the data and Granger pair wise causality test revealed unidirectional causality from oil prices to real GDP and bidirectional causality from real exchange rate to real GDP and vice versa.

Findings further showed that oil price shock and appreciation in the level of exchange rate exert positive impact on real economic growth in Nigeria. The paper recommends greater diversification of the economy through investment in key productive sectors of the economy to guard against the vicissitude of oil price shock and exchange rate volatility.

Dada and Oyeranti (2012) analyzed the impact of exchange rate on macroeconomic aggregates in Nigeria. Based on the annual time series data for the period 1970 to 2009, the research examines the possible direct and indirect relationship between the real exchange rates and GDP growth. The relationship is derived in two ways using a simultaneous equations model within a fully specified (but small) macroeconomic model, and a vector-autoregressive model.

The estimation results showed that there was no evidence of a strong direct relationship between changes in the exchange rate and GDP growth. Rather, Nigeria's economic growth had been directly affected by fiscal and monetary policies and other economic variables particularly the growth of oil exports. These factors have tended to sustain a pattern of real exchange rate over-valuation, which has been unfavourable for growth.

Adeniran, Yusuf and Adeyemi (2014) examined the impact of exchange rate on economic growth from 1986 to 2013 a period of 28 years. The correlation and regression analysis of the ordinary least square (OLS) were used to analyze the data. The result revealed that exchange rate has positive relationship with economic growth but not significant. This implies that exchange rate volatility contributes to Gross Domestic Product (GDP). This affirms previous studies that developing countries are relatively better off in the choice of flexible exchange rate regimes. However, from the empirical analysis of their study, it was discovered that exchange rate is positively related to output growth.

Olajide (2014) stated that real exchange rate plays a significant role in determining the industrial output and also in addition, availability of foreign exchange increase through contentious export drive from both oil and non- oil products would contribute tremendously to increase industrial output. He further stated that a depreciating exchange rate in the absence of domestic sources for input and inadequate infrastructure would raise the cost of production, which would in turn make locally produced goods less competitive compared to the imported counterparts, thus, reversing the benefit of cheaper exports expected from depreciation of any

currency. Similarly, the over- dependence of the economy on imported capital goods implies that a depreciating exchange rate would crowd out marginal investment as a result of high investment cost.

Asher (2012) examined the impact of exchange rate fluctuations on the Nigeria economic growth for period of 1980 – 2010. The result showed that real exchange rate has a positive effect on economic growth. He also opined that exchange rate is used to determine the level of output of the country.Enekwe (2013) showed that exchange rate fluctuations have a positive effect on manufacturing sector in Nigeria. However, exchange rate fluctuations have no significant effect on the quantity and quality of goods manufactured by Nigeria firms. Exchange rate appears not to be an important variable for manufacturing Gross Domestic products.

III. METHODOLOGY

To empirically analyze the above functional form, the ARDL model specification was used to show the long run relationships and dynamic interactions between exchange rate fluctuations and manufacturing output using Auto regressive Distributed Lag (ARDL) co-integration (bound test)

This method was adopted for this study for three reasons; firstly, compared to other multivariate co-integration methods (i.e. Johansen and Juselius 1990), the bound test is a simple technique because it allows the co-integration relationship to be estimated by OLS once the lag order of the model was identified. Secondly, adopting the bound testing approach means that pretest such as unit root was not required. Thirdly, the long run and short run parameters of the models can be simultaneously estimated.

SThe following ARDL model was specified to test the co-integration relationship between manufacturing output, exchange rate, consumer price index and government capital expenditure. We specified our model below as;

$\Delta \ln Y_t = c_0 + \delta_1 \ln Y_{t-1} + \delta_2 \ln X1_{t-1} + \delta_3 \ln X2_{t-1} + \delta_4 \ln X3_{t-1} + \Sigma \phi_i \Delta \ln Y_{t-i} + \Sigma \varphi_j \Delta \ln X1_{t-j} + \Sigma \phi_k \Delta \ln X2_{t-k} + \Sigma \phi_l \Delta \ln X3_{t-l} + \epsilon_t$……(1)

The functional form is,

$\Delta \ln MO_t = c_0 + \delta_1 \ln MO_{t-1} - \delta_2 \ln CPI_{t-1} + \delta_3 \ln GCE_{t-1} - \delta_4 \ln EXC_{t-1} + \Sigma \phi_i \Delta \ln MO_{t-i} - \Sigma \phi_j \Delta \ln CPI_{t-j} + \Sigma \phi_k \Delta \ln GCE_{t-k} - \Sigma \phi_l \Delta \ln EXC_{t-l} + \epsilon_t$……(1)

Where,

MO = Manufacturing Output

Exc = Exchange Rate

Cpi= Consumer Price Index

Gce= Government Capital Expenditure

C_0 = Constant Variable Or Intercept

Φ= Short Run Dynamic Coefficients Of The Model's Convergence To Equilibrium

Δ_1, Δ_2 And Δ_3 = Long Run Dynamic Coefficients

ϵ = Error Term

IV. DATA ANALYSIS AND DISCUSSION

4.1 Unit Root Test

A unit root was carried out to determine if the variables (both dependent are stationary or not. Augmented Dickey Fuller was employed in conducting the unit root test. The variables are linearized in order to reduce their values.

The hypotheses of the test are stated below:

H_0: observable time series are not stationary i.e. have a unit root

H_1: observable time series are stationary i.e. do not have unit root

Decision Rule

H_0 is rejected if the probability is less than 0.01,0.05 or 0.1 at the conventional levels of significance ,that is,1%,5% or 10%

H_1 is rejected if the probability more than 0.01, 0.05 or 0.1 at the conventional levels of significance, that is 1%,5% or 10%

Table 1: Results of Unit Root Test

	Level				1st difference				
	Intercept		Intercept and trend		Intercept		Intercept and Trend		Order of Integration
	T- stats	Prob	T-stats	Prob	T-stats	Prob	T- stats	Prob	
LNMO	-1.163662	0.6776	-2.448837	0.3494	-4.959250	0.0004	-2.789146	0.2132	I(1)
LNCPI	-1.5118839	0.5110	-0.562950	0.9743	-2.665610	0.0911	-1.885557	0.6330	I(1)
LNRG	-2.171754	0.2199	-3.326995	0.0800	-5.269396	0.0002	-5.189787	0.0012	I(0)

CE									
LNREEXC	-2.023688	0.2757	-1.789243	0.6871	-4.251816	0.0022	-4.282425	0.0098	I(1)

Output from Unit Root Test using E- views

The results were obtained from the unit root test, to determine if the variables are stationary. Co-integration to ascertain if there exists a long run relationship between the variables and Error Correction Model version of ARDL to establish their short run relationship and the mechanism which helps maintain long run equilibrium, if actually a long run relationship exists.

Table 1 above, shows that the dependent variable (lnmo) is stationary at first difference while the independent variables are stationary at level and first difference and this can be seen that the probability is less than 0.1 with focus of 10% level of significance. The variables are expressed in their natural logarithm. We conclude that the variables are stationary and integrated of order zero and order one.

Before embarking on the ARDL bounds test, the variables were tested to determine their order of integration. This was done basically to ensure that the variables were not I(2) stationary or of a higher order than I(1).in the presence of I(2) variables the computed F-statistics are not valid because the bounds test is to avoid spurious results, the time series have to be tested to determine their data generation process.

4.2 Co-Integration Test

It had been identified that the series of the variables are integrated of order zero and one. So we proceeded to the formal testing of long run co-integration by performing the Autoregressive Distribution Lag (ARDL) co-integration test between MO, CPI, RGCE and REEXC. The optimal lag length was determined by the Akaike Information Criterion (AIC). Using AIC as a guide, a maximum lag order of 4 was chosen for the conditional ARDL ECM. The F-statistic tested for the joint null hypothesis that the coefficients of the lagged level variables are zero (i.e. no long run relationship exists between them).

4.3 Bounds Testing Approach

The first step in the ARDL bounds testing approach was to estimate equation in order to test for the existence of a long run relationship among the variables by conducting an F-test for the joint significance of the coefficients of the lagged levels of the variable, that is:

H_0: $\delta_1 = \delta_2 = \delta_3 = 0$

H_1: $\delta_1 \neq \delta_2 \neq \delta_2 \neq 0$

We denoted the test which normalizes on MO by F_{MO} (MO|EXC, CPI and GCE). Two asymptotic critical values bound provide a test for co-integration when the independent variables are I(d) [where $0 \leq d \leq 1$]: a lower value assuming the regressors are I(0) an upper value assuming purely I(1) regressors. If the F-statistic was above the upper critical value, the null hypothesis of no long run relationship can be rejected irrespective of the orders of integration for the time series. Conversely, if the test statistic falls below the lower critical value, the null hypothesis cannot be rejected. Finally, if the statistic falls between the lower and upper critical values, the result is inconclusive.

Table 2: Results of Bounds Tests

ARDL Bounds Test
Date: 03/21/16 Time: 07:21
Sample: 1985 2013
Included observations: 29
Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	2.830056	3

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.37	3.2
5%	2.79	3.67
2.5%	3.15	4.08
1%	3.65	4.66

Note: Asympotic critical bounds are obtained from the table 2 above, if the value of F-statistics is higher than the upper bound critical value at 1%,2.5%,5% and 10%level, the null hypothesis of no cointegration is rejected implying the long run cointegration relationship amongst the variables.

From the above, the bound tests was inconclusive because the F-statistics value (2.830056) lies between 10% significant level and 5% significant level but its not higher than the upper bound critical value of 10% and 5%, so therefore the null hypothesis of no cointegration cannot be rejected. Hence, no decision could be made about the long run relationship amongst the variables.

Following the establishment of a long run co-integration relationship, the functional equation which was estimated

$LnMO_t = c_0 + \delta_1 lnMO_{t-i} - \delta_2 lnCPI_{t-j} + \delta_3 lnGCE_{t-k} - \delta_4 lnEXC_{t-l} + \epsilon_t$ .The results obtained by normalizing on manufacturing (MO) in the long run are reported in table 2

Table 2: Estimated Long run coefficients using the ARDL approach

Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNREEXC	1.144511	1.272118	0.899689	0.3809
LNRGCE	1.042946	1.410546	0.739392	0.4698
LNCPI	-0.328078	0.599441	-0.547308	0.5913
C	-2.087166	5.571223	-0.374633	0.7126

The estimated long run coefficients show that there is a long run relationship between exchange rate and manufacturing output. However, the coefficient of exchange rate is positive but it is not statistically significant at 5% level. The result implies that exchange rate has no significant effect on manufacturing output. The long run reveals that there is a long run relationship between government capital expenditure and manufacturing output the results also explains that there is a positive relationship between government expenditure and manufacturing output but it is not statistically significant at 5% level. This implies that government capital expenditure has no significant effect on manufacturing output. There is also a long run relationship between consumer price index and manufacturing output, the coefficient of CPI is negative, that is, there is an inverse relationship between CPI and manufacturing output but it is not statistically significant at 5%.

The results of the short run dynamic coefficients associated with the long run relationships obtained from the ECM equation are given in table 3.

$\Delta lnMO_t = \mu + \Sigma\phi i \Delta lnMOt_{-i} - \Sigma\phi_j \Delta lnCPI_{t-j} + \Sigma\phi_k \Delta lnGCE_{t-k} - \Sigma\phi_l \Delta lnEXC_{t-l} + \epsilon_t$

The signs of the short run dynamic impacts are maintained to the long run.

Table 5: Estimated Coefficients of the short run Dynamic Error correction Model

Cointegrating Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNMO(-1))	-0.243102	0.143324	-1.696172	0.1081
D(LNMO(-2))	0.615787	0.182748	3.369602	0.0036
D(LNMO(-3))	0.364297	0.129937	2.803637	0.0122
D(LNREEXC)	0.201973	0.100936	2.000999	0.0616
D(LNRGCE)	0.180487	0.070476	2.560974	0.0202
D(LNCPI)	-0.483394	0.262329	-1.842699	0.0829
D(LNCPI(-1))	1.093460	0.402047	2.719729	0.0146
D(LNCPI(-2))	0.006758	0.469501	0.014394	0.9887
D(LNCPI(-3))	-1.632591	0.385595	-4.233948	0.0006
CointEq(-1)	-0.155174	0.033034	-4.697375	0.0002

The results of the short run dynamic explains that manufacturing lag values have a positive coefficient and it is statistically significant at 5% level i.e. previous manufacturing output status have positive and it is highly significant on current manufacturing sector. However, exchange rate does not have lag values i.e. the previous exchange rate status does not affect the manufacturing output, the coefficient of exchange rate is

positive and this implies the current exchange rate has a positive relationship on current manufacturing output and it is statistically significant at 5% level. Government capital expenditure does not have lag values too and this implies that the previous government capital expenditure does not affect the current manufacturing output. There is a positive relationship between current government capital expenditure on current manufacturing output and it is statistically significant at 5% level of significance. Previous Consumer price index has an inverse relationship on current manufacturing output given a negative value of coefficient and it is statistically significant at 5%.

The equilibrium error correction coefficient (ECM) estimate of -0.155174 is highly statistically significant. This implies a high speed of adjustment to equilibrium after a shock. Approximately 15% of disequilibrium from the previous year's corrected back to the long run equilibrium in the current year.

Model Specification

$\Delta lnMO_t = c_0 + \delta_1 lnMO_{t-1} - \delta_2 lnCPI_{t-1} + \delta_3 lnGCE_{t-1} - \delta_4 lnEXC_{t-1} + \Sigma\phi_i \Delta lnMO_{t-i} - \Sigma\phi_j \Delta lnCPI_{t-j} + \Sigma\phi_k \Delta lnGCE_{t-k} - \Sigma\phi_l \Delta lnEXC_{t-l} + \epsilon_t$

Estimation Equation:

LNMO = C(1) + C(2)*LNMO(-1) + C(3)*LNMO(-2) + C(4)*LNMO(-3) + C(5)*LNMO(-4) + C(6)*LNREEXC + C(7)*LNRGCE + C(8)*LNCPI + C(9)*LNCPI(-1) + C(10)*LNCPI(-2) + C(11)*LNCPI(-3) + C(12)*LNCPI(-4)

Substituted Coefficients:

LNMO=-0.316799153783+0.602990078542*LNMO(-1)+0.822345548314*LNMO(-2)-0.219873561271*LNMO(-3)-0.357246457226*LNMO(-4)+0.173718875708*LNREEXC+0.158302907608*LNRGCE-0.491909868241*LNCPI + 1.57217277544*LNCPI(-1) - 1.13378440913*LNCPI(-2) - 1.60788957633*LNCPI(-3) + 1.61161388643*LNCPI(-4)

Co- integrating Equation:

D(LNMO) = -0.243101754713*D(LNMO(-1)) + 0.615786646306*D(LNMO(-2)) + 0.364296688785*D(LNMO(-3)) + 0.201972943969*D(LNREEXC) + 0.180487164899*D(LNRGCE) - 0.483393976360*D(LNCPI) + 1.093459850952*D(LNCPI(-1)) + 0.006758069845*D(LNCPI(-2)) - 1.632590612062*(LNMO - (1.14451080*LNREEXC(-1) + 1.04294589*LNRGCE(-1) -0.32807848*LNCPI(-1) -2.08716555) -0.155174199763*CointEq(-1))

IV. DISCUSSIONS OF FINDINGS

From the estimated regression model, we observed that there is a long run relationship between the variables. Government capital expenditure and consumer price index satisfied the apriori expectation which explained the positive and negative relationship on manufacturing output respectively but exchange rate did not satisfy the apriori expectation.

The coefficient of government capital expenditure is positive (1.04292) which implies that 1% increase in Government capital expenditure will cause 104.294% increase in manufacturing output. The coefficient of consumer price index is negative (-0.32) which implies that 1% increase in prices of goods and services will cause a 32% decrease in manufacturing output. The coefficient of exchange rate is positive (1.1445) which explains that 1% change in exchange rate will cause a 114.45% increase in manufacturing output.

This results showed that exchange rate fluctuations has a positive relationship on manufacturing sector but there is no significant effect of exchange fluctuations on manufacturing output.

V. FINDINGS, CONCLUSION AND RECOMMENDATION

The study empirically verified the effect of exchange rate fluctuations on manufacturing sector output. The study revealed that there is a positive relationship between exchange rate and manufacturing sector output in the short run and in the long run but there is no significant effect of the exchange rate on manufacturing sector which explains that changes in manufacturing output in the future is not significantly affected by changes in exchange rate. It is concluded that exchange rate had no significant effect on manufacturing output. Also that the Manufacturing Output can be controlled by other variables such as consumer price index and government capital expenditure.

Based on the findings therefore, the following recommendations were made:

1. The country should developed linkages between the primary commodities and industrialization in order to reduce over reliance on the international market and reduce the effect of uncertainty exchange rate on the country's import.

2. The government should encourage or enforce the usage of domestic raw materials in the production process and also manufacturing agencies should check the quality of products from domestic industries in ensuring they meet international standards in order to encourage international competitiveness.
3. The government should implement policies on export promotion strategies in which exportation will be greater than importation of goods in order to maintain a surplus balance of payment. Imported goods should be ban so as to discourage importation and to prevent dumping, thereby encouraging the patronage of local industries, and also increasing the level of internally generated revenue.
4. Heavy tariffs should be placed on imported goods so as to discourage the citizens from reliance of imported goods.

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