

Exchange Rate Deregulation and Nigeria's Industrial Output (1970-2015)

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ABSTRACT: The study examined the effect of exchange rate deregulation on the industrial output of Nigeria over the period 1970 – 2015. Data for the study comprising Nigeria's Industrial Sector's Output, Exchange Rate, Capacity Utilization and Inflation Rate were sourced from Central Bank of Nigeria (CBN) Statistical Bulletin 2015 edition. The data were analyzed using Error Correction Model and Ordinary Least Squares technique. The result of the analysis revealed that exchange rate deregulation impacted positively and significantly on Industrial output over the long run period. The dummy variable, which was introduced in the data to segment pre-SAP and post-SAP periods also showed that exchange rate deregulation was beneficial to the industrial sector. In conclusion, the study recommended that exchange rate should continue to be deregulated and closely monitored to discourage rent-seekers and price arbitrage. Also, the government should support export-led growth, particularly in provision of incentives and soft loans to aid in the export of locally produced industrial outputs. In addition, government should create a favorable and enabling environment for production such as constant supply of electricity and good road networks.

KEYWORDS: Exchange Rate Deregulation, Industrial Output, Error Correction Model, Structural Adjustment Programme, Capacity Utilization

I. INTRODUCTION

Effective management of the foreign exchange of any nation is required for attainment of the desired growth in the economy. The foreign exchange policy forms an integral part of the monetary and fiscal policies for the attainment of the desired goal. Over the years, the foreign exchange market in Nigeria had witnessed some dynamic changes. Prior to 1986, a rigid foreign exchange management system with a fixed exchange rate was in place. As part of its deregulation policy under the structural Adjustment Programme (SAP), the federal government introduced the (SFEM) Second-tier Foreign Exchange Market in September, 1986 for the purpose of determining a realistic exchange rate for the naira. The foreign exchange market witnessed several dynamic changes and modifications, one of which was the re-introduction of the Inter-bank Foreign Exchange Market (IFEM) in October 1999 with its major objective of Central Bank of Nigeria (CBN) intervening and participating to buy and sell foreign currencies like any other authorized dealer also determining the market price on the basis of bid and offer rates.

These policies include among others, devaluation of the naira, dual exchange rate regime, unified exchange rate, fixed and deregulated exchange rate, etc. In trying to address these imbalances (external), policy makers in Nigeria are always faced with the dilemma of choosing the appropriate exchange rate that will favour competitiveness in the industrial and other productive sectors of the economy. This invariably implies that the extent to which exchange rate fluctuates has adverse effect on industrial development and to the economy as a whole.

Acquisition of industrial capabilities requires the blending of diverse resources of which financial resources constitute a crucial factor. Since the availability of such resources is a major influence on developing industrially like other sectors, every economy seeks avenues to acquire them. One of such avenues is the stabilization of exchange rate movement. It has been observed that the main problem of the Nigerian economy is the declining foreign exchange earnings. However, stability in the exchange rates has continued to elude the economy and thus, the industrial output continues to decline.

For rapid growth and development of any given economy, the economy must pay serious attention to her industrial development (Ndebbio, 1991). An economy is said to be industrialized when the proportion of the Gross Domestic Product (GDP) originating from the industrial sector is much higher than in the agricultural sector. Indeed, one of the distinguishing factors between developed and developing economies is the acquisition of industrial know-how. The benefit of an appropriate industrial base for an economy lie in its contribution on suitable technology, management technique and other resources in order to move from the traditional and low level of production to a more advanced and efficient system of mass processing and manufacturing of goods and services. The industrial sector which comprises of manufacturing, power, construction, mining, water and gas has contributed only a little proportion to the GDP over the years. An effective exchange rate policy would create the right environment which could help strengthen the value of the naira and improve the industrial development of the country.

Over the years, Nigeria has not been able to get to any height her cardinal objectives of macroeconomic goals of price stability, full employment of the labour force, improved and sustained economic growth (growth in industrial sector, balance of payment equilibrium among others). Industrial growth cannot be achieved without the emergence of Small and Medium scale enterprises. The accumulation of foreign reserves could be achieved with a favourable balance of payment which Nigeria is far from achieving. This unfavourable balance of payment position has been attributed to the instability in the naira exchange rate.

The deficit balance of payment is attributed to the imbalance in the external sector. The general belief is that the main problem of Nigeria economy can be traced to the declining foreign exchange earnings and the under-performance of the Naira (Aliyu 2012). It is argued that if the true value of the naira could be ascertained through the policy of exchange rate adjustment, the performance of the industrial sector and indeed other sectors could be on the recovering path.

The study covers a period of 46years (1970-2015). However, it must be mentioned that the industrialization of a nation cannot be divorced from national politics, ideology and international interest. These later issues are however beyond the scope of this work. This work is further limited by paucity of reliable data on the variables of interest.

II. CONCEPTUAL LITERATURE REVIEW

A unified exchange rate system should be able to lead an economy towards the achievement of exchange rate stability. To achieve a realistic exchange rate, the rate of domestic productivity must be stepped up; inflation should be curtailed, while a tight hold should be placed on money supply. The issue is whether exchange rate changes/uncertainty has any significant effect on industrial output in Nigeria.

Shittu et al (2007) is of the view that floating exchange rate would favour unwise economic policies. This will not be able to isolate national economy from external inflationary influences. This argument seems appropriate in the Second-tier Foreign Exchange Market (SFEM) as the rate of inflation has been growing at a faster rate. The rate was 5.4% in 1986 and rose to 72.8% in 1995 (CBN, 1995). This however, could be attributed to the prevalent rates due to excessive demand for foreign exchange by the floating exchange rate system.

Opeyemi (2014) argued that a free exchange rate would allow countries to be autonomous with respect to their uses of monetary, fiscal and other policy instruments. Simo-Oke and Anibisala (2010) pointed out that exchange rate change need not play any significance role in the explanation of Nigerian import and export balance. Ajilimi and Agba (1986) looked at the impact of a floating foreign exchange market on non-oil export and concluded that, the market (FEM) will not be able to enhance non-oil export. This is because the problem of non-oil exports are not that of low prices, but that of stagnated production especially in the agricultural and industrial sectors as a result of oil boom.

During the colonial period, the Nigerian pound was the legal tender in the country. The Nigerian Pound was fixed at an equivalent value with the British pound sterling and therefore was determined by the gold exchange standard. As such the performance of the economy itself had no meaningful influence on the cost of foreign exchange. This was made possible by Nigeria's relatively low import bill at that time and a virile agricultural export economy. Independence did little to change the actual situation and exchange rates remained fairly stable.

In 1972, the Nigeria pound was replaced with an entirely indigenous currency – the naira. Each Nigeria's pound was exchanged for two naira. Basically, the period marked when Nigeria's currency detached from pound sterling in favour of the United States dollar and the beginning of the second historical phase. Volume of trade was expanding and many international routes were opened for business in Nigeria. This era ushered in signing an agreement by the 'group seven' (G7) industrialized countries of United States, Britain, Germany, Japan, France, Italy and Canada and their convertible currencies that were generally accepted for settlement of international trades and other settlement of obligations were dollar, pound sterling, Deutsche mark, yen, France and Canadian dollar respectively.

The second phase marked when foreign exchange market in Nigeria experienced a boom as an increase in export of crude oil earned the nation large foreign reserves. In 1973, the naira was actually devalued marginally in response to the United States devaluation of the dollar, as fixed exchange rate gave way to floating rates. Thereafter, the dramatic increase in Nigeria's foreign currency earnings and the commensurate rise in the nation's foreign currency reserves resulted in the appreciation of the naira.

By 1976, the naira peaked in value with 70 kobo exchanging for one US dollar (Oladele Olashore, 1991). The foreign exchange market experienced drastic changes in this period of boom and the management of it became necessary to ensure that shortages did not arise. However, it was not until 1982 that comprehensive exchange controls were applied as a result of the foreign exchange crises that set in that year. The activities of speculators and numerous middlemen increased during the period. This parallel market premium that emerged over time as a result of the disequilibrium in the official foreign exchange market led to various abuses including under-invoicing of exports and over-invoicing of imports.

The exchange control system was unable to evolve an appropriate mechanism for foreign exchange allocation in consonance with goal of internal balance. That ushered in the third phase and most strategically the epitomized shackle in foreign exchange market in Nigeria. Accompanying the Structural Adjustment Programme (SAP) policy suggested to Nigeria by IMF – World Bank, in September 1986, the market was floated by the introduction of second-tier foreign exchange market policy pact. Under SFEM, the determination of naira exchange rate and allocation of foreign exchange were based on market forces. Many refinements were done to SFEM after the initial introduction. Bureau de change was introduced in 1989 for dealing in privately sourced foreign exchange.

In 1994, formal pegging of naira exchange rate was reintroduced by the Central Bank of Nigeria (CBN). In 1995 Autonomous Foreign Exchange Market (AFEM) was introduced for the sale of foreign exchange to end-users by the CBN through selected authorized dealers at market determined exchange rate. The policy stand was retained in 1996 and was further liberalized in 1997 and 1998 with the lifting of a number of restrictions on external payment, especially the lifting of the suspension on open account and bills for collection and the removal of the limit on personal and business travel allowance.

Foreign exchange market (FEM) can be defined simply as an organizational framework within individuals, firms and bankers buy and sell foreign currencies, (Ndebbio, 1991). This market is set up basically to transfer fund or purchasing power from one nation to another. In the period before SAP, the foreign exchange practice was by rationing or import licensing system. Rationing oiled a lot of abuses among the officials of the Federal Ministry of Trade and other Nigerian and foreign peddlers of import licenses. The period after SAP to date has witnessed different exchange rate markets in Nigeria.

The SFEM was introduced in September 26, 1986 within the framework of Structural Adjustment Programme (SAP). Basically, SFEM was designed to provide an institutional framework for the determination of a realistic exchange rate for the naira through the interplay of market forces of demand and supply. The purpose of SFEM was to discourage import increasing scandal in Nigeria. It was also expected that the rate so determined would eliminate the over valuation of the naira. This invariably would reduce the pressure on the BOP and eventually, the drain on the foreign reserves. The dealers in SFEM were banks and non-bank operators that had the resources and capacity as spelt out in the SFEM decree. Funding of the SFEM was mainly by the federal government through the CBN. The SFEM operated side by side with first tier rate. The First-tier Foreign Exchange Market (FFEM) otherwise referred to as official rate was strictly handled by the Federal Government for the payment of foreign debts, contribution to international organizations and transfers abroad.

In July 1989, the SFEM and FFEM were merged to form (FEM). It was established to encourage, among other things the inflow of foreign capital investment in Nigeria. There were shortages of funds which led to a divergence between the official rate (auction) and the autonomous rate. The practice in the auction market was akin to that obtained during the era of SFEM. Their activities were supervised weekly or bi-monthly by officials of CBN.

On the other hand, autonomous market was also, a market for dealers in foreign exchange at rates higher than those in the auction segment. The aim of introducing the autonomous segment was to replace the parallel market. Contrary to this view it failed to achieve it (the replacement). Structural adjustment programme is a cardinal reform programme aimed at salvaging the Nigerian economy from the anaemia that has affected it since 1982. Liberalization or what we called deregulation is an aspect of this economic reform called SAP. The loosening of some of the various chains of the 1970s on the various policies of liberalization even the establishment of (SFEM) Decree No. 23 of 1986 has affected the deregulation policy such that the CBN no longer has the monopoly of the country's foreign exchange. Although the CBN still remains a major source of foreign exchange market in Nigeria, the banking industry can now acquire, retain and transact business with their sourced foreign exchange (Nigeria Institute of Bankers). Also, Nigeria now has the freedom to maintain in Nigeria account denominated foreign currency.

Exchange rate which is the price of one currency in terms of another currency as opined by Aliyu (2012) is a veritable instrument of economic management and therefore an important macroeconomic indicator used in assessing the overall performance of an economy. Moreover, Douglas and Jike (2005) noted that movements in the exchange rate are known to have ripple effect on other economic variables such as interest rate, inflation rate, unemployment rate, terms of trade, and so on. All of these factors underscore the importance of exchange rate to the economic well being of every country that deals in the international trade of goods and services.

A country is said to be industrialized if it replaces, the old or traditional and low level of production with a more advanced and efficient method of production, that is, a high technological capability. Industrialization, according to (Ndebbio, 1991) can be defined as the process of developing the capacity of a country to master and locate, within its borders, the whole industrial production process, production of raw materials, fabrication of machines and tools required for the manufacture of the desired products and of other machines, skills to operate maintain and reconstruct the machines and tools, skills to manage factories and to organize the production process.

Trends of Industrial Performance seem to indicate that the growth performance of the industrial sector together with its capacity utilization level has not been encouraging. Though, the share of manufacturing which is a sub-sector of the industrial sector, in GDP rose from about 4 percent in 1977 (at 1984 constant prices) to a peak of 13 percent in 1982, but it has since fallen to less than 10 percent recently. A number of factors account for this, chief among which is the inadequate access to raw materials and spare parts because of chronic foreign exchange shortages (Obadan, 1994). The lack of vital industrial inputs negatively affected industrial capacity utilization, which fell from 70 percent in 1981 to about 25 percent in the period 1982 – 1986. The foregoing provides a sketch of the industrial situation when the Structural Adjustment Programme (SAP) was introduced in July 1986, which gave birth to exchange rate deregulation.

With the formal introduction of deregulation as embodied in the Structural Adjustment Programme (SAP) in July 1986 and the scrapping of the import license system, there was a slight improvement in industrial activities. Capacity utilization in the manufacturing sub-sector in the period 1987-1989 rose slightly to an average of 32 percent from the pre-SAP level of 30 percent. Partly responsible for these developments was the replacement of import license system of the pre-SAP period with the Second-tier Foreign Exchange Market (SFEM) (MAN Report, 1987-89). The latter operated generally on the principle of 'ability to pay'.

In the Food, Beverage and Tobacco (FBT) industry, capacity utilization fluctuated within the range of 30 to 40 percent in the period 1986-1993. By the first half of 1993 however, the utilization of installed capacity in the FBT industry was lower than that of the manufacturing sub-sector as a whole. This stood at about 28.5 percent lower than the immediate pre SAP level of 30 percent in the manufacturing sector (AFBTE, 1992/9:6).

The general picture that emerges from the manufacturing sector and the food, beverage and Tobacco (FBT) industry is that, since the economic crisis and adjustment, utilization of installed capacity either before or during deregulation rarely attained 50 percent in the period of 1982-1993. The performances were still below expectation, but that was the inevitable consequence of the unprecedented official depreciation of the naira exchange rate from ₦22.00 to ₦85.00 for US \$1.00 in 1992 (Obadan, 1994).

Closely related to the above crisis is the cost of raw materials-imported and local. While the depreciation of the naira affected the cost of imported raw materials directly, it had a similar effect on local raw materials albeit indirectly. This is because producers of local raw materials also depended on imported machinery and spare parts for their production. Moreover, they depended on products from imported raw materials for their existence.

III. THEORETICAL AND EMPIRICAL LITERATURE REVIEW

Two theories namely, the Balance of payments theory and the purchasing power parity (PPP) theory are reviewed in this work, as demonstrated by Jhingan (2011). *The Balance of payments theory* contends that in a free exchange rate regime, a country's exchange rate depends upon its Balance of Payments. A favorable Balance of Payments raises the exchange rates, while an unfavorable balance of payments reduces the exchange rate. By implication, exchange rate is determined by the demand and supply of foreign exchange. According to this theory, adjustments in the balance of payments can be made through devaluations and revaluations of some currencies in the case of deficits and surpluses, respectively, in the balance of payments.

The Purchasing Power Parity (PPP) Theory states that equilibrium exchange rate between two inconvertible paper currencies is determined by the equality of the relative change in the price levels in the two countries. International competitiveness is measured by comparing the relative prices of the good from different countries when these are measured in a common currency. The Purchasing Power Parity Path for the nominal exchange rate is the path that would keep competitiveness constant overtime. According to this theory, countries with higher domestic inflation than their competitors would face a depreciating nominal exchange rate, while countries with lower domestic inflation than their competitors would face appreciating exchange rates.

Olufayo and Fagile (2014) examined the impact of exchange rate volatility on the performance of the Nigerian export sector, separating the sector into oil and non-oil sector. They adopted the econometrics method of Seemingly Unrelated Regression (SUR); and in testing the volatility of the exchange rates; they adopted GARCH (generalized autoregressive conditional heteroskedasticity) technique and examined 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.

Onyeizugbe and Umeagugesi (2014) examined exchange rate management and the survival of the industrial subsector of Nigeria. Ordinary Least Square (OLS) regression method was used to examine the relationship between manufacturing capacity utilization (dependent variable) and exchange rate, export, GDP and inflation (independent variables). The result shows that manufacturing capacity utilization has positive relationship with exchange rate and export.

Okhiria and Saliu (2008) in a study on exchange rate variation and inflation in Nigeria noted that Dutch disease results from an appreciation of the exchange rate, caused by the large inflows of petroleum revenues, which again leads to reduced competitiveness of various non-petroleum sectors of the economy. Dutch disease will often have particularly serious effects on the poor because traditional sectors such as agriculture and other production in rural areas will lose out to imports that become more competitive as a result of currency appreciation.

Lawal (2016) examined the effect of exchange rate fluctuations on manufacturing sector output in Nigeria from 1986 to 2014, a period of 28 years. Data on manufacturing output, Consumer Price Index (CPI), Government Capital Expenditure (GCE) and Real Effective Exchange Rate (EXC) were sourced from the CBN statistical bulletin. The data were analyzed using the Autoregressive Distributive Lag (ARDL) technique and the result of the analysis showed that exchange rate fluctuations have a long run relationship with manufacturing sector output. The result showed that exchange rate has a positive but insignificant relationship with manufacturing sector's output.

Akinlo et al (2015) examined the impact of changes in real exchange rate on industrial production in Nigeria. The result revealed the existence of long run relationship between industrial production index, exchange rate, money supply and inflation rate.

Aliyu (2012) researched on an assessment of the impact of exchange rate deregulation and structural adjustment programme on cotton production and utilization in Nigeria. The result of his analysis showed that exchange rate deregulation has no significant effect on cotton production in Nigeria.

IV. METHODOLOGY

For the purpose of this study, the ex-post-facto research design is used. Ex-post-factor research is a research that is undertaken after the events have taken place and the data are already in existence. The macroeconomic time series data are generally characterized by stochastic trend which can be removed by differencing. Thus, this paper adopted the Augmented Dickey-Fuller (ADF) and Philips Perron Techniques to test and verify the unit root property of the series and stationarity of the model.

The cointegration test was used to test for the existence of long run relationship amongst the variables and the Ordinary Least Square (OLS) technique is used to estimate the values of the model parameters β_0 , β_1 , β_2 and β_3 . Also, the student's t-test statistic is obtained to determine the statistical significance of the parameter estimates and the test of goodness of fit for the model is done using the R^2 . Finally, the Durbin –Watson test is used to test for the presence or absence of auto-correlation in the time series data.

4.1 Model Specification

The model is a modified version of Lawal (2016) and Akinlo et al (2015). The specification of the functional form of the model gives:

$$\text{INDT} = F(\text{EXCR}, \text{CAUT}, \text{INFR})$$

Where;

INDT = Industrial Output

EXCR = Exchange Rate

CAUT = Capacity Utilization

INFR = inflation rate

The functional form can be rewritten in econometric format thus:

$$\text{INDT} = \beta_0 + \beta_1 \text{EXCR} + \beta_2 \text{CAUT} + \beta_3 \text{INFR}$$

Econometrically;

$$\text{INDT} = \beta_0 + \beta_1 \text{EXCR} + \beta_2 \text{CAUT} + \beta_3 \text{INFR} + U_t$$

Where; $\beta_0, \beta_1, \beta_2, \beta_3$ are the unknown parameters to be estimated and INDT is industrial sector's output.

4.2 Sources of Data

Data on Industrial output, Exchange rate, Capacity Utilization and Inflation rate were obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin 2015 edition.

V. MODEL ESTIMATION AND RESULTS

We first examine the stationarity of the variables using the unit root tests. Next, we test for cointegration among the variables after which we carry out estimation of the model using Error Correction and Ordinary least Squares methods.

Table 1: Unit Root Test Result

ADF TEST				PHILIPS PERRON TEST			
Variable	level	Ist difference	5% critical value	Level	Ist difference	5% critical value	Order of integration
INDT	-2.410409	-5.608424*	-2.933158	-2.350541	-17.41754*	-2.929734	1(1)
EXCR	1.385445	-6.193174*	-2.929734	1.385445	-6.191759*	-2.929734	1(1)
CAUT	-1.607351	-5.709199*	-2.929734	-1.662732	-5.709199*	-2.929734	1(1)
INFR	-2.283811	-6.833166*	-2.931404	-2.119719	-13.10010*	-2.929734	1(1)
DUMMY1	-1.359194	-6.633250	-2.929734	-1.357811	-6.633252*	-2.929734	1(1)

Source: Researcher's Computation (2018)

Table 1 presents the result of the stationarity test using the Augmented Dickey Fuller and Philip Perron tests. The result shows that all the variables were stationary at first difference. By implication, they were not characterized by unit root problem. Given that all the variables were stationary at first difference, the test for co integration among the variables was conducted using the Johansen co-integration test. This test was used to determine the long run relationship among the variables. The null hypothesis of no co integration was tested against the alternative hypothesis that co-integration exists. The null hypothesis is rejected if Trace statistic (Table 2) or Maximum eigen statistic (Table 3) respectively is greater than the critical value at 5% level of significance.

Table 2: The Co-Integration Test Result using Trace statistics

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistics.	5%Critical Value
None *	0.601913	94.69615	69.81889
At most 1 *	0.467746	54.16843	47.85613
At most 2	0.325066	26.42055	29.79707
At most 3	0.180351	9.122362	15.49471
At most 4	0.008411	0.371656	3.841466

Table 3: The Co-Integration Test Result Using Max-Eigen Statistics

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistics.	5%Critical Value
None *	0.601913	40.52772	33.87687
At most 1 *	0.467746	27.74788	27.58434
At most 2	0.325066	17.29819	21.13162
At most 3	0.180351	8.750705	14.26460
At most 4	0.008411	0.371656	3.841466

Source: Extracted from Eviews Output

The cointegration test presented in Tables 2 and 3 above shows that there are two co-integrating equations at 5% significance level. The implication is that there is a long run relationship between industrial output and the independent variables of the model.

Table 4 below presents the result of the error correction model. The error correction model estimates reveal that exchange rate deregulation has not made any significant positive impact on Nigeria's industrial output in the short run.

Table 4: Result of the Error Correction Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2383.546	1181.450	2.017476	0.0533
D(EXCR)	15.39025	86.75772	0.177393	0.8605
D(EXCR(-1))	-143.8840	95.42287	-1.507857	0.1428
D(EXCR(-2))	-42.21384	103.7286	-0.406964	0.6871
D(EXCR(-3))	-63.30012	101.7205	-0.622295	0.5388
D(CAUT)	-90.11514	175.1775	-0.514422	0.6110
D(CAUT(-1))	64.14968	169.3551	0.378788	0.7077
D(CAUT(-2))	217.7749	162.3846	1.341106	0.1907
D(CAUT(-3))	169.9306	165.0417	1.029622	0.3120
D(INFR)	-34.54820	71.54409	-0.482894	0.6329
D(INFR(-1))	14.40364	71.33457	0.201917	0.8414
D(INFR(-2))	-21.62885	70.92689	-0.304946	0.7627
D(INFR(-3))	10.10034	67.28984	0.150102	0.8818
ECT(-1)	-0.703424	0.170730	-4.120093	0.0003

Source: Extracted from Eviews9 Output

The coefficient of the ECM is significant at 5 percent level of significance and has the correct negative sign. This indicates a feedback of approximately 70% of the previous year's disequilibrium from the long run Economic growth elasticity and it is significant, which suggests that any short run disequilibrium in the system will be adjusted in the long run. The coefficient is reasonably high and suggests that adjustment to equilibrium is reasonably fast. This result is in line with Akinlo et al (2015).

Table 5 below presents the Ordinary Least Square estimates of the model. Exchange rate is positively signed and has a significant impact on industrial output. This suggests that exchange rate deregulation is beneficial to the industrial output in Nigeria. The positive sign of the exchange rate may be explained by the fact that high exchange rate induces most industrialists to source their raw materials and machinery locally thereby saving costs in local currency. Similarly, high exchange rate may also induce them to look for foreign markets to sell their goods in order to earn foreign currency. Capacity utilization is rightly signed and significant.. this means that deregulation improves the industry's capacity utilization which in turn has a significant impact on industrial production.

Table 5: Ordinary Least Squares Estimates of the Model

Variables	Coefficient	Std. Error	T-Statistic	Prob.	VIF
EXCR	120.0923	40.18627	2.988390	0.0061	8.609857
INFR	241.8378	138.8480	1.741745	0.0934	8.831747
CAUT	447.5405	156.4879	2.859905	0.0082	6.737148
DUMMY1	13089.16	5530.938	2.366536	0.0257	5.704413
C	4920.045	11697.32	0.420613	0.6775	NA

R – Squared = 0.795103

Adjusted R-squared = 0.669012

Durbin-Watson Stat. = 1.597616

The dummy variable (which was introduced to segment the pre-SAP period and the post-SAP period) has a significant positive impact on industrial output. This suggests that exchange rate deregulation was beneficial to the industrial sector during the post-SAP era.

Deregulation of the exchange rate also induced inflation in the economy, which from the table 5 above, is significant at 10% level, and which significantly increased industrial output. This is so because high inflation rate forces industrialists to engage in massive production in order to benefit from the higher prices of their products.

The Adjusted R² value of 69% is a good fit, indicating that our model is adequate and plausible. Durbin Watson value of 1.60 indicates low and insignificant presence of autocorrelation in the error term. Similarly, all the variance inflation factor (VIF) values are less than 10 showing that multicollinearity has an insignificant presence in the data.

VI. CONCLUSION AND RECOMMENDATIONS

The study investigated exchange rate deregulation and Nigeria's industrial output over the period 1970 to 2015. Data for the study were sourced from CBN Statistical Bulletin (2015 edition) and then pre-tested for stationarity and cointegration. All the variables were found to be stationary after first difference and also cointegrated. The data were analyzed using the Error Correction model and Ordinary Least Squares techniques. The result of the analysis revealed that exchange rate deregulation did not make any significant positive impact on industrial output in the short run. However, in the long run, exchange rate and capacity utilization were significant implying that exchange rate deregulation impacted positively and significantly on industrial output. It also induced increase in capacity utilization which in turn caused increased industrial output.

The dummy variable which was used to segment the pre-SAP and post-SAP era had a significant positive impact on industrial output, showing that exchange rate deregulation was beneficial to the industrial sector. The high R^2 value of 69% suggests that our model is adequate and plausible. Therefore the study concludes by making the following recommendations:

1. Exchange rate should continue to be deregulated and the deregulation closely monitored to discourage rent seeking and price arbitrage by players in the official exchange market.
2. Government should create a favourable enabling environment for production which would also attract foreign investors. Such enabling environment includes constant supply of electricity,, good network of roads and security of lives and property.
3. Government should seriously support export-led growth, particularly in the provision of incentives and soft loans for export of locally produced industrial output. This will make foreign exchange more available to the economy.

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