EXCHANGE RATE VARIABILITY AND GROWTH OF NIGERIAN INDUSTRIAL SECTOR: TREND AND DESCRIPTIVE ANALYSIS

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ABSTRACT

This paper assessed the trend between exchange rate variability and growth of Industrial sector in Nigeria. In this study, secondary data over the period 1980 – 2018 was used and the trend analysis and descriptive statistical technique were considered as analytical tools. Data were sourced mainly from the publications of the Central Bank of Nigeria (CBN) namely; CBN Statistical Bulletin, CBN Statement of Accounts and Annual Reports, and the Nigerian Bureau of Statistics publications. The study found that a relationship exists between the industrial productivity growth rate, ratio of industrial production to gross domestic product, exchange rate, interest rate. In order to determine the short term dynamics around the equilibrium relationship, exchange rates emerged as significant determinant of industrial productivity growth rate in Nigeria. The analyses suggest the significance for Nigerian policy makers to embark on robust and all-inclusive exchange rate policies in order to accelerate and sustain growth of Nigerian Industrial sector.

Keywords: Exchange Rate, Industrial Output, government expenditure on Industrial sector, Interest Rate, Inflation rate, Trend Analysis

INTRODUCTION

The exchange rate which is the price of one currency in terms of another currency, (Shehu, 2009), which has been a veritable instrument of economic management and therefore it is been regarded as one of the most important macroeconomic indicator used in assessing the overall performance of an economy. Exchange rate as an economic indicator plays an increasingly significant role in an economy, as it directly affects domestic price level, profitability of traded goods and services, allocation of resources and investment decisions (Ajakaiye, 1994). Ajakaiye noted that movements in 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. These factors especially note the importance of exchange rate to the economic well-being of every country which deals with both domestic and international goods and services.

The management of any country's foreign exchange market is carried out within the range of authority of a foreign exchange policy, which according to Obaseki (2001), is the sum total of the institutional framework and measures put in place to gravitate the exchange rate towards desired levels in order to stimulate the productive sectors, curtail inflation, ensure internal balance, improve the level of exports and attract direct foreign investment and other capital inflows.

An open economy like Nigeria that depends more on importation to support domestic production, exchange rates will always play a critical role in its ability to attain optimal production capacity in industrial sector of the economy. Thus, exchange rate uncertainty or its fluctuations that has been attended to the introduction of exchange rate deregulation which is prone to serious implications for the macroeconomic stability for the country. For instance, an over-valued exchange rate will always hurt or produce a low performance of export industries which will result to reducing foreign exchange inflow, leading to unsustainable balance-of-payments deficits. On the other hand, excessive devaluation of the domestic currency or depreciation of the exchange rate will increase the cost of imported production inputs which will be fuelling more inflationary pressures.

Objectives of study

The main objective of this research is to analyse the trend of exchange rates and output of industrial sector in Nigeria using trend and descriptive research technique and to examine the extent exchange rate variabilty enhanced Nigeria's Industrial sector's output. In order to achieve adequate research results, the following research questions are stated:

1. What is the trend of exchange rates and output of industrial sector in Nigeria?
2. To what extent has the exchange rate variability enhance output of Nigerian Industrial sector?
3. determine their use of various media during the COVID-19 pandemic lockdown in Nigeria?

The scope of the study

The study is aimed at examining the relationships between exchange rate and output of industrial sector in Nigeria between 1980-2018. The structure of this study is to evaluate the relationships between exchange rate and manufacturing output in Nigeria.

Literature Review

The Nigerian exchange rate regimes

An exchange rate regime refers to the method or technique adopted by the monetary authorities of a country which is used to determine the value of her currency in relations to other currency. In the course of Nigeria's economic history, the fixed, flexible as well as some hybrid of exchange rate regimes had been practiced at various times, depending on the prevailing economic conditions and the overall development objectives of the Federal government (C.B.N 2016) . Foreign exchange practices in Nigeria have been influenced by the country's changing pattern of international trade, institutional changes as well as structural shift in production.

Exchange rates regimes in Nigeria can be categorized into three which include the following

1) The period of no defined exchange rate regime (before CBN)

2) Fixed exchange rate regimes (1959- June 1986)

3) Flexible exchange rate regimes (June 1986 till date)

The Period of No Defined Exchange Rate Regime: The establishment of the CBN in 1958 and the enactment of the Exchange Control Act in 1962, the agricultural sector was the major foreign exchange earner. During this period foreign exchange at this time was earned by individual firms and the foreign exchange balances were maintained and controlled in foreign banks and also by commercial banks that acts as agents for local exports.

The Fixed Exchange Rate Regimes: this connotes an era during which the exchange rate of the country was fixed and controlled by the monetary authority without room for the market forces of demand and supply. This regime only lasted when the central bank of Nigeria was established in 1959 and end in an era when the structural adjustment policy was introduced in Nigeria in 1986.

The Flexible Exchange Rate Regime: The exchange rate liberalization policy under the SAP

framework gave way to flexible exchange rate regime in Nigeria in 1986. Under this system, foreign exchange administration became liberalized and the forces of demand and supply were allowed to determine the exchange rate. This system started in September 1986 with the dual exchange rate system – the first and second tier foreign exchange rate market (SFEM). The first tier had a fixed exchange rate and it was used for government transactions or official business, while the second tier, had a market determined exchange rate, and it was used for private sector transactions.

The Nigerian Industrial Policy

Industrial policy can be defined as a systematic government involvement, through specifically designed policies in industrial affairs, arising from the inadequacy of macroeconomic policies in regulating the growth of industry. Instruments of industrial policy include subsidies, tax incentives, export promotion, government procurement, and import restrictions. Other policies such as direct government investment or nationalization of foreign investment formed the core of industrial policy from the 1970s to 1986. However, macroeconomic policies such as exchange rate, monetary policy, trade policies, still shape investment decisions. The development of the Nigerian industrial policy involved through two key stages. They are as follows:

- The first period (1970 – 1985) covers the state-led import substitution industrialization strategy. The main focus is on the economic role of government through direct investments, administration of a protectionist trade regime, and the introduction of schemes such as indigenisation and preferential credit to nurture indigenous entrepreneurs (Adekoya, 1987). It is argued that the roles assumed by the government, gave it a leadership role in the economy and direct control over the welfare of individual private businesses. The government's strategy during this period simply involved attracting and encouraging foreign capital to engage in manufacturing activities.

- The second period (1986 – Present) lays emphasis on the economic

liberalization policies that replaced the state-led import substitution industrialization strategy and nationalization policy (Adekoya, 1987). Government's policy in this period focuses on privatization, deregulation of foreign investments, trade liberalisation, deregulation of credit policy and the introduction of the Foreign Exchange Market (FEM). Privatisation and deregulation has resulted in the reliance of market, rather than state regulation, and is reducing the role and power of government relative to the private sector. Economic liberalization was also introduced in Nigeria as part of the Structural Adjustment Programme (SAP). Environmental constraints to development are acutely felt in the industrial sector in relation to both production and consumption of manufactured goods. While most problems arising from the consequences for the environment of the consumption of industrial products are an economy-wide concern, environmental effects of industrial production fall within the purview of the industrial sector alone.

Empirical review of literature

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.

Acha and Acha (2011) giving an analytical perspective of interest rates in Nigeria, observed that savings deposit rates and lending rates did not satisfactorily predict savings and investment. This, he said was because other factors which include low income, preference for each and lack of confidence may have contributed in the case of savings. In the case of investment, he argued that the funds borrowed are not used for productive purposes. In his findings, savings and investment were seen to be highly positively correlated just as lending rate and MPR.

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.

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.

Onoh (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. The demand for dollar has remained so high, hence the increase in exchange rate and ultimately resulting to high cost of imported goods.

Nnanna (2015), researched on Exchange rate Fluctuation and Sustainable Economic growth in Nigeria and the essence of the research was to ascertained 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 (FXS) between 2004 and 2014. Analyzing the data using vector auto regression analysis (VAR) technique. Based on the prevailing situation in Nigerian economy within the period of study, the study found that Real exchange rate fluctuation was significantly controlled by positive relation to real import as well as negatively relation to real GDP and foreign direct investment.

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).

METHOD OF STUDY

The project made use of secondary data in reaching the objectives of this research work and also answering the research questions. Data were sourced mainly from the publications of the Central Bank of Nigeria (CBN) namely; CBN Statistical Bulletin, CBN Statement of Accounts and Annual Reports, and the Nigerian Bureau of Statistics publications. The variables for which data will be sourced include: Exchange Rate, Industrial Output, gross domestic product, government expenditure, inflation rates

and interest rate for the period 1980 to 2018.

PRESENTATION OF RESULTS AND TRENDS ANALYSIS
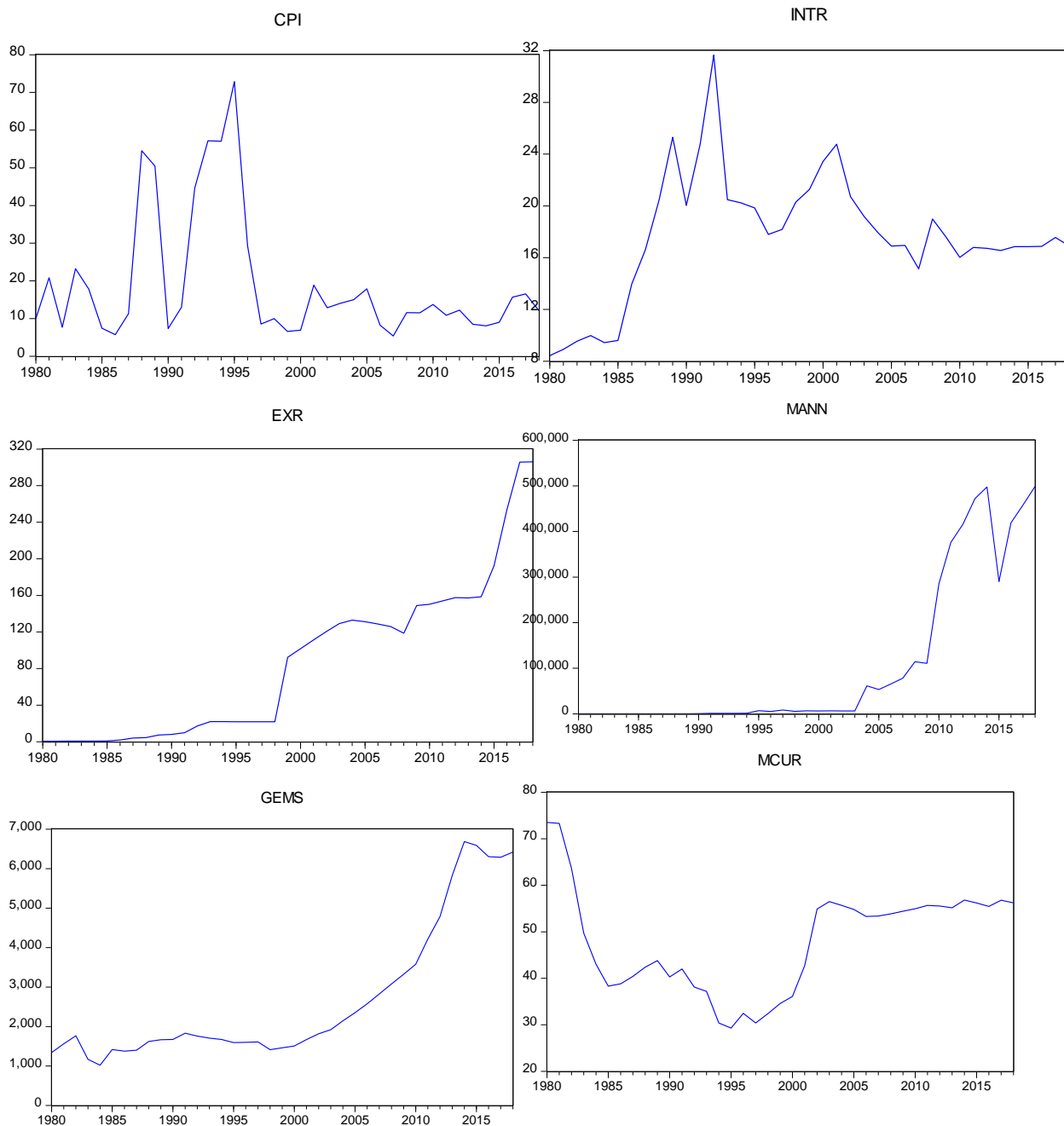
Source: Author's computation

From figure 4.1 above which shows the trends analysis, the output of industrial sector which was 39 in 1980 rose to 43.5 then had a sharp fall to 4.6 in 1982 which is about 89.22% decrease then rose in the following year. The value had a steady increase from 55.5 in 1986 to1107.8 in 1991 this is 19132.73% increment with seven years then fell. The value had a sharp rise from 1203.5 in 1994 to 7001.8 which represents a 481.79% increase, this is the highest increase within two years. The value fluctuated between 1996 and 2007. The value rose sharply from 78097.9 in 2007 to 114195 in 2008 and since then the value had a consistent sharp increment till 2014 then fell in 2015. It however picked up in and continued in the trend.

Industrial capacity utilization rate was 73.3 had a steady fall till it got to 38.30 in 1985 then started rising till it got to 43.8 in 1989. The value fell in 1990 then rose in the following year then started falling again, then started falling from 37.19 in 1993 to 29.29 in 1995. The value had a steady increase from 32.4 in 1999 to 56.5 in 2003 then started felling. The rate picked up in 2008 and keep increasing up till it got to 56.22 in 2018, Exchange rate value had a steady increase starting with 0.617708 in 1981 to 22.0654 in 1993 which was about 3,472.14% increment. The values fell to 21. 996 in 1994 and maintain the value till 1998 then had a sharp increase to 92.3381 in 1999 which was about 321.91% increment and this is the highest increment within two years. The rate keep increasing till it get to 128.651667 in 2006 before it start falling and it continued in the downward trend till it get to 118.546017 in 2008. The value picked up and keep increasing, it however had a sharp increase from 158.5526 in 2014 to 192.4403 in 2015 (21.37% increment), then another sharp increment to 253.492 in 2016 (31.73% increment), yet another sharp increment to 305.7901 in 2017 (20.631% increment), then a slight increment to 306.0837 in 2018.

The value of consumer price index was 9.97 in 1981 rose to 20.81 in 1982 then fell to 7.7 in 1983 then rose to 23.21 in 1984 which was about 201.4% increment from the value in 1983. The rate started falling uptill it got to 5.72 in 1987 then started rising again. It rose from 11.29 in 1988 to 54.51 in 1989 (382.82%) which was the highest increment within two years. The rate fell up to 7.36 in 1991 then started increasing up till it got to 72.84 in 1996 which was the highest under the study review then the rate started falling again till it got to 5.38 which was the lowest rate in 2008 then started rising till it got to 13.72 in 2011 then started falling again till it got to 8.06 in 2015 then started rising till it got to 12.675

The interest rate had a steady increase, from 8.431667 in 1980 to 9.97667 in 1983. It

then had a slight fall in 1984, and picked up in the following year and kept increasing up till it got to 25.3 in 1989. The rate had a sharp increase from 24.758 in 1993 to 31.65 which is about 27.84% increment then had a sharp fall to 20.48 which is 35% fall and continue the fall till it got to 18.184 in 1997 then started increasing and continue in the trend till 2001. The value started falling in 2002 and fluctuating.

Descriptive Statistics

Descriptive statistics shows the qualities of the data that are been used for estimation, the knowledge of which allow us to define the appropriate methodology for estimation. The table below summarizes the descriptive statistics.

Descriptive Summary of the Variables

Table 1: Result of the Descriptive Summary of the Variables

	LOG(INDUS)	ICUR	INTR	LOG(GEIS)	EXR	CPI
Mean	8.570432	48.00920	17.67857	7.722990	86.28779	19.08399
Median	8.777780	53.30000	17.55333	7.472277	92.33810	12.21778
Maximum	13.11982	73.52000	31.65000	8.807504	306.0837	72.83550
Minimum	1.526056	29.29355	8.431667	6.926486	0.550000	5.382224
Std. Dev.	3.506312	11.33163	4.878873	0.557221	87.13028	17.09234
Skewness	-0.232215	0.160734	0.143810	0.859176	0.833024	1.783024
Kurtosis	1.790983	2.425119	3.736578	2.382850	3.006400	4.991134
Jarque-Bera	2.725803	0.704973	1.016067	5.417116	4.510603	27.10714
Probability	0.255917	0.702938	0.601678	0.066633	0.104842	0.000001
Sum	334.2468	1872.359	689.4643	301.1966	3365.224	744.2756
Sum Sq. Dev.	467.1806	4879.424	904.5294	11.79883	288484.0	11101.62
Observations	39	39	39	39	39	39

Source: Author's computation

The result of table 1 shows that the estimated mean value used to examine the pattern of distribution recorded highest mean value for exchange rate with 86.28779and the minimum mean value was recorded by LOG(INDUS) with 8.570432. The standard deviation showed that INDUS (3.506312), INTR (4.878873), EXR (87.13028), CPI (17.09234) and ICUR (29.29355) demonstrate high variability within the variable while LOG (GEMS) 0.557221 showed low variability within the variable.

In summary, all the variables under this study are widely dispersed around their means indicating that they are grossly affected by their extreme value.

INTR, LOG (GEIS), EXR, CPI and ICUR had positive skewness while LOG (INDUS) had negative skewness.

Kurtosis shows the flatness or peakness of the normal curve. It measures of the "tailedness" of the probability distribution of a real-valued random variable. It is normal distribution and mesokurtic if kurtosis equal 3, platykurtic if kurtosis less than 3 and leptokurtic if kurtosis greater than 3. From table 4.1 INTR and CPI were leptokurtic, LOG (INDUS), LOG (GEMS), and MCUR were platykurticwhile EXR was mesokurtic.

Jarque-Bera is a test statistic for testing whether the series is normally distributed. The test statistic measures the difference of the skewness and kurtosis of the series with those from the normal distribution. Table 4.1 reveals that only CPI is significant at 5% while other variables are not significant at 5% level when compared with their probabilities.

Summary of the Findings

The trend analysis observed that exchange rate, output of industrial sector and government expenditure on industrial sector sector experienced increased but has an unstable performance over the period of study but other variables (CPI, industrial capacity utilization and interest rate) varies over the period of the study.

The unit root result showed that all the variables were integrated of order one, that is, the variables were I(1) series except industrial capacity utilization and Consumer price Index were integrated of order zero, that is, the I(0) series.

CONCLUSION AND RECOMMENDATIONS

There is the need for Government to establish and implement policies that will encourage and protect infant industries so as for the new industry to compete in the international market. The findings of the study showed that government expenditure on industrial sector was positively significant in influencing output of industrial sector in Nigeria, thus there is the need for Nigeria government to spend more in the industrial sector for instance expenditure on technology, or as export subsidy order to improve the industrial output in the economy.

From the findings discussed above, the following recommendations are offered in

order to improve the relationship between exchange rate and output of industrial sector in Nigeria:

In order to boast the level of industrial sector's output in Nigeria, there is the need for the government to manage or control the exchange rate in order promote export and support export - led growth, particularly in the provision of incentives and soft loans for export of locally produced manufacturing output. This will enable foreign exchange more available to the economy.

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