

IMPACT OF EXCHANGE RATE FLUCTUATIONS ON PERFORMANCE OF THE MANUFACTURING SECTOR IN NIGERIA (1993 -2024)

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Abstract

This “study titled; Impact of Exchange Rate Fluctuations on Performance of the Manufacturing Sector in Nigeria (1993–2024), investigated how variations in exchange rate influenced the growth of Nigeria’s manufacturing sector between 1993 and 2024. Growth rate of the manufacturing sector served as the dependent variable, while exchange rate was the explanatory variable, whereas, inflation rate, and public capital expenditure on infrastructure served as control variables. Secondary data used were sourced from the Central Bank of Nigeria, Statistical Bulletin. The study adopted the Autoregressive Distributed Lag (ARDL) technique for the analysis of data. The empirical findings suggested that exchange rate has positive and statistically insignificant relationship with manufacturing sector growth in Nigeria. In contrast, inflation rate showed a negative and statistically significant effect on manufacturing growth during the period examined. Similarly, public capital expenditure on infrastructure demonstrated a negative and statistically significant relationship with the growth rate of the manufacturing sector. The study concludes that stable exchange rate, improved and adequate infrastructure and stable inflation rate will enhance manufacturing sector growth in Nigeria. It suggested that monetary authorities, particularly the Central Bank, should implement policies aimed at maintaining exchange rate stability. Central Bank of Nigeria (CBN) should also pursue policies to reduce inflation rate to a stable single-digit, within the Nigerian economy. Furthermore, the government should prioritize infrastructure development tailored to the needs of the manufacturing sector in order to enhance” its performance.

Key words: Exchange rate, Fluctuations, Manufacturing sector.

1 Introduction

Every “developing nation, including Nigeria, aspires to achieve rapid industrialization. When effectively managed, industrialization has the capacity to bring about structural transformation and economic stability. Empirical evidence indicates a positive relationship between exchange rate stability and the performance of the manufacturing sector (Nucci & Pozzolo, 2014; Opaluwa, Umeh & Ameh, 2012). In developing economies, industrialization is regarded as a deliberate strategy aimed at expanding and strengthening the manufacturing base. Consequently, industrial reforms and policies are designed to significantly enhance manufacturing output. Lawal (2016), observed that in Nigeria, policymakers and economic analysts have consistently highlighted the critical role of industrialization and manufacturing in driving structural economic transformation. The 1988 Industrial Policy for Nigeria

emphasized accelerating industrial development and positioning the industrial sector as the backbone of the national economy. To achieve this, various fiscal, monetary, exchange rate, and trade policies have been implemented within the limits of available resources to promote industrial growth.

In an effort to address structural constraints and mark a turning point in the development of Nigeria's manufacturing sector, the Structural Adjustment Programme (SAP) was introduced in July 1986. Its core objective was to eliminate structural distortions and bottlenecks arising from excessive government controls. A key consideration was the recognition that the foreign exchange rate plays a crucial role in the efficient allocation and utilization of scarce resources. It influences capital inflows, domestic industrial production, export promotion, purchasing power, balance of payments equilibrium, price stability, import and export structure, government revenue, external reserves, and the competitiveness of local manufacturers relative to foreign firms. Chong and Tan (2016), found through empirical analysis that exchange rates significantly affect macroeconomic fundamentals in developing economies. Exchange rate fluctuations impact domestic prices through their influence on aggregate supply and demand. Typically, currency depreciation increases import prices for countries that are price takers in international markets, while appreciation reduces import prices. The higher cost of imported inputs resulting from depreciation raises marginal production costs and leads to increased prices of domestically produced goods (Kandil, 2014).

The Manufacturers Association of Nigeria (MAN, 2012), in a survey conducted as part of its membership operational audit in January 2010, reported that out of 2,780 registered members, 839 firms (30.2%) shut down operations in 2009. These closures were largely attributed to the harsh business environment, including exchange rate management challenges and deteriorating infrastructure. Furthermore, MAN's 2006 Annual Report estimated that approximately 4.2 million jobs were lost in the sector between 1983 and January 2006. Additionally, its March 2010 newsletter revealed that another one million jobs were lost between 2006 and 2010. In pursuit of macroeconomic stability, Nigeria's monetary authorities have implemented different exchange rate regimes over time—transitioning from a fixed exchange rate system in the 1960s to a pegged regime between the 1970s and mid-1980s, and subsequently adopting various forms of floating exchange rate systems from 1986 following the introduction of SAP.

In developing countries such as Nigeria, foreign exchange policy serves as a critical policy instrument. Exchange rate policy worldwide aims at achieving a long-run equilibrium rate capable of stabilizing the balance of payments in the medium and long term, while supporting objectives such as enhanced domestic production, export diversification, and price stability. The manufacturing sector is widely recognized as the engine of industrialization and economic development. However, Nigeria's manufacturing sector is characterized by low foreign investment, underutilized capacity, limited value addition, high production costs, weak technological development, poor returns, and a minimal contribution to Gross Domestic Product (GDP). Its weak structure and heavy dependence on imports contribute to high production costs, Osuntogun, Edordu & Oramah, (2015). The persistent poor performance of the sector since 1986 has been linked to macroeconomic instability and exchange rate inconsistency. Given these structural challenges, this study seeks to examine the impact of foreign exchange rates on the performance of Nigeria's manufacturing sector, with the primary objective of assessing how exchange rate movements influence manufacturing outcomes" in the country.

2.0 Review of Related Literature

2.1 Manufacturing Sector Performance: African Experience

Manufacturing "occupies a central position in the economic framework of any country because it makes significant contributions to overall output, job creation, income generation, and technological progress. Its impact is not confined to the direct production of goods; it also

produces multiplier effects by stimulating complementary industries, deepening supply chains, and strengthening human capital and innovation capacity. As observed by Osuntogun, Edordu and Oramah, (2015), the manufacturing sector serves as a key engine of economic transformation, acting as a catalyst for structural change and sustained development. By promoting value addition and fostering industrial linkages, manufacturing enhances domestic productive capacity and minimizes overreliance on primary commodity exports.

Nevertheless, in many Sub-Saharan African (SSA) countries, manufacturing performance has remained weak and uneven over time. This pattern is closely associated with deindustrialization, reflected in declining industrial output, fragile technological capabilities, and limited diversification within the sector. Several structural constraints—including a significant resource gap, low levels of capital formation, poor infrastructure, and inadequate Foreign Direct Investment (FDI) inflows—have hindered industrial growth in the region. In the aftermath of the global economic crisis of the 1980s, partly precipitated by falling oil prices, many SSA countries implemented structural adjustment reforms aimed at revitalizing industrial development. However, despite reforms such as liberalization and privatization, the anticipated industrial breakthrough was not fully achieved. As highlighted by Sajo and Amade (2025), enduring financing deficiencies and insufficient FDI continue to pose major challenges to sustainable manufacturing expansion in developing economies.

Considering the strategic relevance of industrialization, accelerating manufacturing growth is widely seen as a practical route for Africa to attain deeper economic development and structural transformation. A robust manufacturing sector can drive export diversification, boost productivity, expand employment opportunities, and generate spillover benefits across industries through both backward and forward linkages. Acknowledging this potential, SSA governments are increasingly adopting innovative and investor-oriented policies to attract foreign investment, improve the business climate, and build stronger domestic industrial capacity. According to Nsofor, Obani & Agu, (2024), developing a competitive and dynamic manufacturing sector is crucial for sustainable growth, enhanced global competitiveness, and long-term economic stability in the region.

A Recap of Nigerian Foreign Exchange Rate Policy

An international exchange rate—often called the foreign exchange (FOREX) rate—refers to the price of one country's currency stated in terms of another country's currency. In simple terms, it shows the quantity of one currency needed to obtain a unit of another. Since currencies derive their value only in comparison to other currencies, exchange rates are inherently relative and are continuously influenced by demand and supply conditions in the global foreign exchange market.

Within international trade, exchange rates hold substantial importance. For firms involved in cross-border business activities, the prevailing exchange rate determines the cost of imported goods and the earnings generated from exports. When a domestic currency depreciates, exports tend to become less expensive and more competitive in foreign markets, while imports grow costlier. On the other hand, an appreciation of the domestic currency reduces the price of imports but may weaken export competitiveness. Consequently, fluctuations in exchange rates have direct implications for trade balances, production planning, pricing strategies, and the profit margins of internationally operating firms.

Beyond their impact on trade, exchange rates are strongly connected to overall macroeconomic performance. They influence inflation levels, foreign direct investment flows, the cost of servicing external debt, and the movement of capital across borders. Together with interest rates and inflation, exchange rates are regarded as key indicators of a nation's economic stability and the credibility of its economic policies. Sustained exchange rate volatility can generate uncertainty, deter foreign investors, and complicate economic forecasting and planning. As noted by Faff, Raboert and Andrew, (2015), exchange rates are among the most

significant macroeconomic variables observed by policymakers, investors, and financial analysts because of their broad implications for economic performance and financial stability. Given their strategic importance, exchange rates are often closely monitored and, in some cases, actively managed. Governments and central banks may intervene in foreign exchange markets to stabilize their currencies, curb inflationary pressures, or safeguard export competitiveness. However, in market-oriented economies, exchange rates are largely driven by market forces, making them one of the most scrutinized and frequently analyzed indicators in the international financial system.

2.2 Theoretical Underpinnings

Although this “study reviewed an extensive array of related empirical and theoretical literature, its main analytical underpinning is based on the J-Curve theory. The J-Curve framework describes the evolving relationship between currency depreciation and a nation’s trade balance over time. Specifically, it demonstrates that a domestic currency depreciation may initially worsen the trade balance before eventually improving it. When plotted over time, this adjustment trajectory resembles the shape of the letter J, which gives the theory its name. This study employs the J-Curve model as presented by Kallianiotis (2022), which systematically explains how changes in exchange rates influence trade flows in both the short and long term. According to this model, immediately following a currency devaluation or depreciation, the trade balance may worsen temporarily. This short-term deterioration occurs because import and export quantities do not adjust instantaneously to the new exchange rate. Import agreements are often fixed in advance, and consumer purchasing patterns may not change immediately. Consequently, although the domestic cost of imports rises, the import volume may remain largely unchanged, temporarily increasing import expenditure. Meanwhile, export volumes may not rise quickly enough to compensate for this effect.

Over the longer term, however, both behavioral and structural adjustments occur. Higher domestic prices for imported goods encourage consumers to substitute imports with locally produced alternatives, if available. This stimulates domestic production and strengthens local industries. At the same time, exports from the depreciating country become relatively cheaper for foreign buyers, boosting international demand. As export volumes grow and import volumes gradually decline, the trade balance starts to improve.

During this adjustment phase, the economy benefits from increased productive activity, improved export performance, and a gradual reduction of the current account deficit. Ultimately, the intended macroeconomic result—an enhanced trade balance and a stronger external position—is achieved. Therefore, the J-Curve theory provides a dynamic perspective on how currency depreciation, despite initial adverse effects, can foster long-term improvements in trade balance and overall economic stability.”

2.3 Empirical Evidence

Several “studies have investigated the link between foreign exchange rates and manufacturing sector output, but the findings have been varied and sometimes contradictory. The methodologies adopted in these studies have produced mixed empirical results, leading to ambiguous conclusions (Nucci & Pozzolo, 2014). For instance, Opaluwa et al. (2012) analyzed the effect of exchange rate fluctuations on Nigeria’s manufacturing sector over a twenty-year period (1986–2005). They used the model $MGDP = f(MER, MFPI, EXR)$, where MGDP represents manufacturing gross domestic product, MER is the manufacturing employment rate, MFPI denotes manufacturing foreign private investment, and EXR stands for the exchange rate. Their results indicated that exchange rate fluctuations negatively impacted manufacturing output.

Similarly, Lawal (2016), investigated the effect of exchange rate volatility on manufacturing output from 1986 to 2014 (28 years). Using data from the 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), the study employed multiple regression analysis through the Autoregressive Distributed Lag (ARDL) approach. The findings revealed both long-run and short-run relationships between exchange rate fluctuations and manufacturing output. Although the exchange rate showed a positive relationship with manufacturing output, it was not statistically significant. Nonetheless, the analysis confirmed a positive association between exchange rate and manufacturing output.

Fasoranti (2014), explored the relationship between trade openness and cocoa production in Ondo State. However, no study has thoroughly examined the effect of trade openness on industrial output and its subsequent contribution to aggregate output growth, thereby overlooking the key channels through which trade openness could influence overall economic” growth.

Methodology

The study used ex-post facto research design, because the study intends to establish cause and effect relationship, also the researcher has no control over the variables of interest and therefore cannot manipulate them. The study employed Auto regressive distribution lag ARDL model of econometric analysis.

3.1 Model Specification

The model for the study is specified as below;

- $MSGR = f(P_i)$ 1
- Where $P = EXCR + INFR + PCE$ 2
- $MSGR = f(EXCR + INFR + PCE)$ 3
- $MSGR = a_0 + a_1 EXCR + a_2 INFR + a_3 PCE + u$ 4

Where;

MSGR Stands for Manufacturing Sector growth rate, which is the explained Variable

EXCR is Exchange rate, INFR is inflation rate

PCE is Public Capital Expenditure as proxy for Physical Infrastructure

U is the stochastic or error term

4. Discussion of Findings

Table 4.1 Descriptive Statistics

	MSGR	EXCR	PCEI	INFR
Mean	6.9978	192.29	3021.009	17.021
Median	6.53211	132.08	2122.000	13.040
Skewness	0.6664	3.3816	1.4022	2.239
Kurtosis	4.3415	16.3894	5.1518	7.228
Jaque-Bera	4.7684	300.0260	16.160	50.585
Probability	0.0921	0.0000	0.0002	0.000000
Observations	32	32	32	32

Author’s computation using E views 12

Table 4.1 gives the descriptive statistics of the variables which provides a summary of key macroeconomic indicators in Nigeria for the period under study. The average values for manufacturing sector growth and inflation rate were 7 percent and 17.2 percent respectively. The average exchange rate during the period was #192. / US dollar, while average public capital expenditure on infrastructure was #3021 billion.

The median values for manufacturing sector growth, exchange rate and inflation rate were 7%, #132/ US dollar and 13.04% respectively. The skewness provides information on the asymmetry of each variable’s distribution relative to its mean.

Table 4.2 Result of optimum lag

Lag	LogL	LR	FPE	AIC	SIC	HQ
0	90.46705	NA*	31.86549	6.297803	6.484630	6.357571
1	83.60418	2.264413	21.58950*	5.906945*	- 6.140478*	5.981655*
2	82.64262	0.000709	21.69530	5.909508	6.189747	5.999159

Source: Author`s Computation using E view 12

From table 4.2 the Schwarz Information Criterion (SIC) emerged as the most appropriate and reliable for model lag selection.

Table 4.3 Unit root test result

Variable	ADF	ADF Lag	Order of Integration
	Unit root value 5%	Critical Value 5%	
MSGR	-5.2759	-2.963972	1(0)
EXCR	-5.9740	-2.998064	1(1)
PCEI	-5.6011	-2.981038	1(1)
INFR	-3.9477	-2.991878	1(1)

Source: Author`s computation using E view

The ADF unit root test result from table 4.3 shows that the variables were integrated at mixed levels, which validates the use of ECM model.

Table 4.4 MSGR Model

Panel A, Long Run Output

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
MSGR(-1)	0.607710	0.156274	3.888744	0.0006
PCEI	0.000560	0.000649	-3.694102	0.0038
INFR	-0.003613	0.065036	-3.055549	0.0061
EXCR	0.003817	0.008802	0.433614	0.6681
C	3.446074	2.189389	1.573989	0.1276
R-squared	0.433258	Mean dependent var	7.048406	
Adjusted R-squared	0.346067	S.D. dependent var	5.216336	
F-statistic	4.969061	Durbin-Watson stat	1.910421	
Prob(F-statistic)	0.004127			

Panel B, Long Run Output

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
MSGR(-1)	0.610419	0.166339	3.669738	0.0013
PCEI	0.000563	0.002846	2.197878	0.0049
PCEI(-1)	-0.001140	0.002941	-3.387494	0.0020
INFR	0.019698	0.104405	0.188664	0.8520
INFR(-1)	-0.028169	0.099985	-2.281729	0.0007
EXCR	-0.002482	0.019064	-2.300188	0.0005
EXCR(-1)	0.007366	0.030842	0.238828	0.8134
C	3.498701	2.775515	1.260559	0.2201
CoIntEq(-1)*	-0.392290	0.152942	-2.564951	0.0164

R-squared	0.439027	Mean dependent var	7.048406
Adjusted R-squared	0.268296	S.D. dependent var	5.216336
F-statistic	2.571453	Durbin-Watson stat	1.739396
Prob(F-statistic)	0.041058		

Source: Author's Computation using E view 12

From Table 4.4 "Panel A, which presents the long-run analysis of the variables, the constant value of 3.4460 indicates that, *ceteris paribus*, the manufacturing sector in Nigeria exhibits an autonomous growth rate of 3.4%, even without changes in the explanatory variables. The exchange rate shows a positive but statistically insignificant effect on manufacturing sector growth. Conversely, inflation has a negative and statistically significant impact on manufacturing growth during the period under study. Similarly, public capital expenditure on infrastructure also exhibits a negative and statistically significant relationship with manufacturing growth in the long run.

Table 4.4 Panel B reports the short-run dynamics of the variables. At the level form, exchange rate negatively and significantly affects manufacturing sector growth, while its first lag shows a positive but statistically insignificant effect. Inflation exhibits a positive and insignificant effect at the level form, but its first lag shows a negative and statistically significant relationship with manufacturing growth. Public capital expenditure on infrastructure has a positive and significant effect at level, but its first lag demonstrates a negative and significant" impact. The F- statistic value and its probability showed that on the overall, the explanatory variables were statistically significant. Hence the regression" is not a zero-type.

Policy Implications

The long-run analysis shows that the exchange rate is positively associated with manufacturing sector growth, although its effect is statistically insignificant during the period. In contrast, the dynamic analysis reveals a negative and statistically significant impact of the exchange rate on manufacturing growth, indicating that currency depreciation may hinder the sector over time, potentially due to increased costs of imported inputs. This underscores the need for policymakers to prioritize stable exchange rate policies.

Public capital expenditure on infrastructure exhibits a positive and statistically significant effect on manufacturing growth in the long run, suggesting that strong infrastructural development can drive improvements in the sector. However, in the first lag, government spending on infrastructure shows a negative and significant effect, implying that infrastructure investment may have delayed adverse impacts on manufacturing, possibly due to bureaucratic inefficiencies or poor project management.

Inflation rate consistently demonstrates a negative and statistically significant relationship with manufacturing growth, both in the long run and the first lag, which aligns with theoretical expectations. This highlights the importance of monetary authorities maintaining low and stable inflation rates.

Overall, public infrastructure spending positively influences manufacturing in the long term but has negative short-term effects, while inflation negatively affects growth in both the short and long runs. These findings suggest that infrastructure gaps and inflationary pressures can constrain manufacturing growth, emphasizing the need for policies that ensure timely infrastructure delivery and stable and low inflation rate to support the sector.

5. Conclusion and Recommendations

The study concludes that stable exchange rate, improved and adequate infrastructure and reduction as well as stable inflation rate will enhance manufacturing sector growth in Nigeria.

Hence, monetary authorities and fiscal agencies should come up with appropriate policies and policy implementation to drive the manufacturing sector on the path meaningful growth in the country.

Recommendations

From the conclusion, the study came up with the following recommendations.

- 1 The Monetary authorities; Central Bank policies should ensure stable exchange rate
- 2 Central bank policies should ensure reduction, possibly single digit stable inflation rate in the Nigerian economy.
- 3 Government should focus on manufacturing needs infrastructure development in Nigeria and ensure timely delivery of budgetary projects.

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