

Evaluation of the Impact of Exchange Rate Policy on ... Bello, I. U, Et. al. (2026)

Evaluation of the Impact of Exchange Rate Policy on Manufacturing Sector Output in Nigeria

BELLO, Isma'eel Usman¹

Email address: gamankejo@yahoo.com
08065553552

ENEJI, Mathias Agri²

Agrieneji@yahoo.com

OGBORU, Ishmael²

Ogborui@Yahoo.Com

¹Department of Economics, Sa'adu Zungur University, Bauchi, Bauchi State, Nigeria

²Department of Economics, University of Jos, Jos, Plateau State Nigeria

Abstract

Globally, exchange rate policy plays crucial role in both money market and real sector activities owing to their impact on the value of domestic currency. This study evaluates the impact of exchange rate policy on manufacturing sector performance in Nigeria, spanning 1981 to 2023. The Autoregressive Distributed Lag Error Correction Model (ARDL-ECM) regression was used as technique of analysis. The results revealed that balance of payment (BOP) had significant negative impact on manufacturing sector performance, the lagged FDI (-1) had significant negative impact on manufacturing sector performance. The results also revealed that short-run exchange rate (EXR) had insignificant positive impact on manufacturing sector performance and insignificantly negative impact in the long-run. Also, foreign exchange reserves (FXR) in the short-run and long-run had significant positive impact on manufacturing performance. It was found that inflation rate (INF), both in the short-run and long-run, had insignificant negative impact on the performance of manufacturing sector. The results showed that in both short-run and long-run interest rate (INT) had significant negative effect on manufacturing sector performance. Also, the results showed that in both short-run and long-run, exchange rate implementation regime (EXP) proxied by dummy variable, had insignificant positive impact on manufacturing sector performance. The results also revealed that in the short-run, exchange rate implementation status (EXS) dummy variable, had insignificant negative impact on the performance of manufacturing sector, while in the long-run it had significant negative impact on manufacturing sector performance. The study concluded that exchange rate policy significantly impacts manufacturing sector performance and recommended among others that government should promote export diversification by providing incentives that encourage a wide range of manufacturing sector firms and export-related products, they should mandate the deposit money banks through the Central bank to maintain a single digit interest rate to boost investors' confidence on the economy, government should channel a portion of foreign reserves in providing financial supports, subsidies and export incentives to manufacturers, effective import substitution policy and implement effective exchange rate management policy to avoid exchange rate swings and encourage manufacturing sector investment stability in order to raise the level of performance of the manufacturing sector.

Keywords: Exchange Rate, Balance of payment, Inflation Rate, Interest Rate, Foreign Direct Investment, Foreign Exchange Reserves, Manufacturing sector performance

Introduction

The manufacturing sector is an integral component of the real sectors of the economy that has the potentials of propelling economic growth through is job creation and income generation capacity. Mlambo (2020) stated that the manufacturing industry has traditionally, been one of the key drivers in most national economies. The manufacturing sector is an avenue for trade expansion and it is a vital source of innovation and competitiveness and it makes outsized contributions to exports and productivity growth (Onwuka, 2022). The manufacturing sector contributed a modest 4.8% in 1960, manufacturing sector's contribution to the country's GDP increased to 7.2% in 1970 and to 7.4% in 1975 (Central Bank of Nigeria, 2020). Prior to the oil boom of the 1970s, Nigeria's manufacturing sector contributed approximately 10% to Nigeria's GDP. Subsequently, increased revenues from sales of crude oil caused the sector's relative GDP share to drop. In 1980, it dropped to 5.4% but then surged to a record high of 10.7% in 1985 (CBN 2020). The fall has affected the foreign exchange reserve of Nigeria to decline tremendously. The recession caused by the fall in oil prices in the early 1980s triggered policy attention



Evaluation of the Impact of Exchange Rate Policy on ... Bello, I. U, Et. al. (2026)

to turn back to the manufacturing sector, with steel production gaining prime focus (World Bank, 2020). The contribution of manufacturing sector to GDP of Nigeria was 13% in 2020, while the contribution of this sub-sector of the real economic in Bangladesh was 19%, and 20% in low and middle-income economies. Exchange rate is a prominent determinant of Nigerian manufacturing activities and world trade, receiving much attention in the context of national and global imbalances. It is obvious fact that the Nigerian manufacturing sector highly imports dependent for input factors and as such, must be mindful of the exchange rate system that governs import and export activities. The subject of exchange rate fluctuation became a tropical issue in the Structural Adjustment Programme (SAP) in Nigeria, as a result of fluctuations of naira exchange rate in 1986. In 1990 for instance the naira exchanged for 7.39 per US dollar, and later in 2000 it exchanged for 85.98 per US dollar before rising to over 500 per US dollar in 2022 (World Bank, 2022). Exchange rate depreciation increases the cost of imported capital goods for manufacturing firms and this result to a fall in domestic investment among others. The exchange rate is therefore an important relative prices as it has influence on the external competitiveness of domestic manufactured goods, especially in countries like Nigeria that is import dependent for manufacturing input (Andrew & Omoruyi, 2018). This likely leads to an increase in the expected value of capital and its level of investment. Chong and Tan (2016) found that exchange rate is responsible for changes in macroeconomic fundamentals for the developing economies. It is relevant to establish that exchange rate fluctuations influence domestic prices through their effects on aggregate supply and demand. (Abiola, 2018). The Central Bank of Nigeria's attempts to manage the exchange rate in the face of inflationary challenges have often proven futile, leading to increased uncertainty. The policy has created distortions in the market and undermined investor confidence. As its aftermath is the endless free fall in value of the naira, Nigeria's inflation rate has been on a rise and stood at 12.1% in 2018 but slightly slope-down to 11.4% in 2019 and instantaneously upsurge to 133.2 in 2020, 17% in 2021 and 18.8% in 2022. This scenario is believed to be occasioned by continuous depreciation of local currency compared to the dollar which has since raised from 306.08 US\$ in 2018 to 306.92 US\$ in 2019. Subsequent years between 2020 and 2022 saw the local rate further slide down to 358.81 US\$ in 2020 to 401.14 US\$ and 425.98 US\$ in 2021 and 2022 (World Bank, 2022). Besides the fluctuation in the exchange rate have undulating effects on macroeconomic variables such as foreign reserves, interest rate, inflation rate, and economic growth (Okoli, Mbah, & Agu, 2016). In the light of this view, foreign reserves are those external assets that are readily available and controlled by a country's monetary authorities. It further comprises foreign currencies and gold reserves. Dodo, Richard and Abdullahi (2023) asserted that foreign reserves represent the number of external assets held by a nation. However, since this reserves re not kept in local currencies, their prices or rates of converting them from foreign to local currency justifies they need for stability in the exchange rate.

Empirical Review

The relationship between exchange rate and manufacturing sector performance has been widely studied in extent literature, but there are variations in research findings which could be due to choice of variable, study area or other methodological issues. Tonye and Gbarawae (2023) evaluated the effects of exchange, and interest rates on manufacturing sector performance in Nigeria. The data were sourced from the World Bank's World Development Indicators (WDI) and the Statistical Bulletin of the Central Bank of Nigeria (CBN) for the analysis. The Auto-regressive Distributive Lag (ARDL) model. High volatility in exchange and interest rates have a positive effect on manufacturing sector performance, as shown by the results of the Autoregressive Distributive Lag (ARDL) bound test, and the results from Arch and Garch corroborate these findings. Auto-regressive Distributive Lag (ARDL) results indicated a positive and statistically significant relationship between the exchange rate and the performance of the manufacturing sector over time at 0.05 level. Bank size revealed a positive but insignificant relationship with manufacturing sector performance in the short-run, while the coefficient of interest rate spread and inflation rate were both negative and significantly influenced manufacturing sector performance in the current year period. The study concluded that Nigeria's manufacturing sector is strongly correlated with the country's exchange and interest rates and recommended amongst others that, the federal government should peg the local currency rate and mandate the deposit money banks through the Central bank of Nigeria (CBN) to maintain a single digit interest rate. The strength of this research is predicated on the fact that it captures exchange rate and interest rates s explanatory variables of manufacturing sector performance, but failed to take into cognizance the role of inflation and exchange rate dummy in the analysis. Orji and Ezeanyaeji (2022) examined the impact of exchange rates on the performance of the manufacturing sector in Nigeria between 1990 and 2020. Using canonical cointegrating regression (CCR) framework, the result obtained showed that exchange rate devaluation constrains manufacturing sector while



Evaluation of the Impact of Exchange Rate Policy on ... Bello, I. U, Et. al. (2026)

exchange rate fluctuation hampers manufacturing output. The study indicated that price increase leads to decline in the manufacturing sector, the study recommends among other things the need to formulate policies that align with the exchange rate to the actual needs of the manufacturing sector. The study further suggests that change in exchange rate management strategy should be allowed to run a reasonable course of time. Jettisoning strategies at will and on frequent basis has implication for exchange rate and obvious consequence for a sector that depends on foreign inputs. The strength of this empirical study is predicated on the fact that it focused on exchange rate and manufacturing sector performance, but while the researchers covered 1990 to 2020 and canonical cointegration, the present research extended the period to 2023 to accommodate changes that have taken place in exchange rate policies in Nigeria and ARDL estimation technique that addresses the problem of endogeneity. Ugwoke (2022) investigated the impact of inflation on the manufacturing sector output in Nigeria using time series data obtained from Central Bank of Nigeria (CBN) statistical bulletin, National Bureau of Statistics (NBS), World Bank Development Indicators (WDI) and World Economic Organization (WEO). The Autoregressive Distributed Lag (ARDL) bound test approach was adopted. The result revealed that inflation rate was correctly signed and thus had a negative effect on the manufacturing sector output, although this proved to be statistically insignificant. The paper recommended that government should encourage investors in local raw materials through direct incentives, and overhaul access to credit for the productive sector particularly the manufacturing sector. The choice of inflation and manufacturing sector output and the used of ARDL estimation is an indication that the study is a guide to the current research. However, variables such as exchange rate, interest rate and foreign exchange rate that may exert influence on the real sector performance were not capture in the previous study. Onwuka (2022) examined the impact of exchange rate volatility on the performance of manufacturing sector in Nigeria using ARCH/GARCH model and Autoregressive Distributed Lag Model (ARDL). The ARDL results show that exchange rate volatility; interest rate and inflation rate had a negative impact on the performance of manufacturing sector in the long run while import and gross capital formation have a positive effect on manufacturing performance in the long run. Also, exchange rate volatility, gross capital formation and interest rate were found to have a significant impact on manufacturing performance while import and inflation were found to be non-significant. The strength of the study lies on the fact that it concentrated on the performance of the manufacturing sector in Nigeria, while the scholars focused in the volatility of exchange that necessitated the usage of ARCH/GARCH, this study is delimited to exchange rate policy and captures foreign exchange rate, inflation rate and exchange rate dummy as explanatory variables. Ac-Ogbonna(2021) examined the impact of fluctuations of macroeconomic variables such as exchange rate, lending rates and inflation rates on the manufacturing output in Nigeria. The study used descriptive statistics. The findings revealed that macroeconomic instability impacted negatively on the manufacturing output. The paper therefore recommended that policies that will streamline the multiple and volatile exchange rates, interest rate and inflation control should be designed and implemented to ensure their predictability to aid planning and attract both domestic and foreign investors to the, manufacturing sector. This is expected to increase manufacturing output in Nigeria. The study is relevant to the work because it concentrated on exchange rate, lending rates and inflation rates on the manufacturing output which indicates the performance of the sector, but the researchers did not also examine how foreign exchange rate and crude oil revenue impact the performance of the manufacturing sector. Furthermore, while previous study used descriptive statistics, this study employed the ARDL regression as an inferential statistic for the analysis. Asaleye, Maimako, Inegbedion, Lawal and Ogundipe (2021) investigated the effect of exchange rate on manufacturing performance in Nigeria. The study employed Structural Vector Auto regression (SVAR), ECM and Canonical Co-Integrating regression to examine the shock effect, short and long-run elasticities of exchange rate on the manufacturing performance. While employment and output were used as a proxy for manufacturing sector performance. The findings showed that changes in the exchange rate are fairly elastic with output and employment both in short and long-run. However, changes in the exchange rate are insignificant with employment in the short run. The variance decomposition form of the SVAR showed that forecast error shock of the exchange rate is more prolong on employment than output. The outcome of the result indicated that the Nigerian exchange rate has not improved output and employment in the manufacturing sector. The study is relevant to the work based on the fact that it focuses on exchange rate and manufacturing sector in Nigeria, but while the researchers used SVAR, this study employed the ARDL method. Samuel and Wale-Odunaiya (2021) investigated the consequences of undervaluation of exchange rate in Nigeria on the manufacturing output and economic growth between 1981 and 2019. The Vector Error Correction Mechanism was employed and it was found from the impulse response function that real effective exchange rate does not significantly affect economic growth and it



Evaluation of the Impact of Exchange Rate Policy on ... Bello, I. U, Et. al. (2026)

is negatively related with manufacturing output. This study is relevant in terms of variables and study area, but its major weakness is it used time series data covering 1981 o 2019, while this research extended the period to 2023 considering the dynamic nature of exchange rate policy in Nigeria. Mlambo (2020) examined the impact of the exchange rate on manufacturing performance in the Southern African Customs Union (SACU) states using the panel group FMOLS and PMG approaches for the period 1995 to 2016. The results showed that the exchange rate, imports and foreign direct investments have a negative relationship with manufacturing performance. Exports and inflation had a positive relationship with manufacturing performance. The study is relevant to the work because it was on exchange rate and manufacturing sector performance, but while the scholar focused on the situation in Southern African Customs Union and used the FMOLS, this study is delimited to Nigeria and used the ARDL Techniques.

Theoretical Framework

The study is anchored on the monetary theory of exchange rate determination developed by Frankel (1976) and supported by Bilson (1978). The theory emphasizes that the demand for money is a function of the different motives for holding money, but that interest rate plays important role in speculative demand for money. According to the theory, interest rate is determined exogenously because there is perfect mobility of factors. The theory states in that in the long-run, nominal money demand is stable and positively related to nominal income, but inversely related of the interest rate. This implies that the higher the level of nominal income, the higher the demand for money, but the higher the rate of interest, they lower the demand for money. This means that the money demand and supply equilibrium can be affected by nominal income and interest rate and this has a lot of effect on changes in exchange rate. Thus, under a fixed exchange rate, the theory argues that excess money supply leads to deficit balance of payment, while depreciation of currency occurs under flexible exchange rate regime.

Methodology

The study used the *expost-facto* design approach as is guide. This design was considered appropriate because the research examined the relationship between variables that cannot be manipulated since time series data were used. The study used annual time series data spanning 1970 to 2023 sourced from World Development Indicators (WDI). This study used the Autoregressive Distributed Lag (ARDL) regression approach in the estimation of the relationship between the variables. The ARDL model was first developed by Pesaran and Shin (1999). The ARDL regression provides consistent estimate of the long run coefficient that are asymptotically normal irrespective of whether the underlying regression are purely 1(0), 1(1) or mutually, integrated. First, ARDL integrates the relationships between variables of interest in the short and long run. Moreover, the ARDL model is beneficial since it uses the lags as instruments to adjust for endogenous regressors and residual serial correlation (Abdul-Mumuni, 2016).

Model Specification

The theoretical basis for the specification of the model is the monetary theory of exchange determination put forward by Frankel (1976) and Bilson (1978) with modification of variables. This theory shows that changes in exchange rate, interest rate and inflation are key determinants of an equilibrium position between domestic and foreign currencies. However, the generic specification of the ARDL model showing both its short-run and long-run relationship is as follows:

$$\Delta Y_t = \beta_0 + \beta_1 Y_{t-1} + \beta_2 X_{t-1} + \beta_3 Z_{t-1} + \sum_{i=1}^p \lambda_i \Delta Y_{t-i} + \sum_{i=0}^p \psi_j \Delta X_{t-i} + \sum_{i=0}^p \phi_j \Delta Z_{t-i} + \varepsilon_t \dots \dots \dots (1)$$

Where:

The model in equation 1 shows that Y represents the dependent variable which in this study is manufacturing sector performance measured as by the percentage of manufacturing sector contribution to the GDP (MGDP), while X and Z shows explanatory variables of the independent variable, namely exchange rate (EXR), inflation rate (INF), interest rate (INR), foreign exchange reserves (FER), foreign direct investment (FDI), balance of payment (BOP) as well as the exchange policy regime dummy (EXP) and exchange rate implementation status (EXS). Also, β_0 is the slope parameter measuring the magnitude of the effect of the independent on the dependent variable, β_1 β_2 and β_3 are the long-run parameters. Furthermore, the model shows that λ_i , Δ and ϕ are the short-run parameters of the ARDL Model, while ε is the linear stochastic or error term that measures the effect of other variables that can exert influence on manufacturing



Evaluation of the Impact of Exchange Rate Policy on ... Bello, I. U, Et. al. (2026)

sector performance aside the variables in the specified model. The functional or implicit form of the relationship between exchange rate policy explanatory variables and manufacturing sector performance (MGDP) is expressed as follows:

$$MGDP = f(EXR, INF, INT, FDI, BOP, FXR, EXP, EXS).....(2)$$

The explicit specification of the implicit or functional model in equation 2 used the model used in the empirical study of Abiola (2022) that examined impact of exchange rate volatility on the manufacturing sector growth performance in Nigeria, but with modification in terms of variable and study period. The original model used manufacturing sector contribution to GDP as dependent variable, while exchange rate, inflation rate, interest rate, manufacturing foreign direct investment and imports were used as explanatory variables of the independent variable. The modified model following the dynamic ARDL Error Correction Model (ARDL-ECM) explicit model from equation 2 takes the form:

$$\begin{aligned} \Delta MGDP_t = & \beta_0 + \beta_1 MGDP_{t-i} + \beta_2 EXR_{t-i} + \beta_3 INF_{t-i} + \beta_4 INT_{t-i} + \beta_5 FDI_{t-i} + \beta_5 BOP_{t-i} \\ & + \beta_5 FXR_{t-i} + \beta_5 EXP_{t-i} + \beta_5 EXS_{t-i} + \sum_{i=1}^p \lambda_i \Delta MGDP_{t-i} + \sum_{i=0}^p \psi_j \Delta EXR_{t-i} + \sum_{i=0}^p \phi_j \Delta INF_{t-i} \\ & + \sum_{i=1}^p \theta_j \Delta INT_{t-i} + \sum_{i=0}^p \delta_j \Delta FDI_{t-i} + \sum_{i=0}^p \sigma_j \Delta BOP_{t-i} + \sum_{i=0}^p \hat{\delta}_j \Delta FXR_{t-i} + \sum_{i=0}^p \omega_j \Delta EXP_{t-i} \\ & + \sum_{i=0}^p \eta_j \Delta EXS_{t-i} + \rho_i ECM_{t-1} + \varepsilon_t \end{aligned} \quad (3)$$

The ARDL model in equation 3 captures both short-run and long-run relationship between the variables and the Error Correction Mechanism (ECM). The Error Correction Model denoted by ECM_{t-1} measures the adjustment path to a long-run equilibrium relationship between the variables, where ρ is a parameter used to determine the speed of adjustment or adjustment path from short-run disequilibrium due to a shock to a long-run equilibrium level. Three conditions necessary for this adjustment are that the sign of the coefficient of ECM_{t-1} must be negative, its coefficient must be less than one and statistically significant to ensure convergence of the dynamics to the long-run equilibrium. Also, from the model, the p's are the lag length and ε_t is the error term.

Table 2: Results of ADF Unit Root Test

Variable	ADF-Test Coefficients		PP-Test Coefficient	
	Coefficient	Order of Integration	Coefficient	Order of Integration
MGDP	-6.741853 (0.0000)	1(1)	-6.799991 (0.0000)	1(1)
BOP	-7.353843 (0.0000)	1(1)	-8.007067 (0.0000)	1(1)
EXR	-5.583285 (0.00439)	1(1)	-3.419037 (0.0060)	1(1)
FDI	-4.408693 (0.0000)	1(0)	-4.363607 (0.0010)	1(0)
INF	-3.587285 (0.0093)	1(0)	-3.410966 (0.0049)	1(0)
INT	-10.12042 (0.0000)	1(1)	-10.25634 (0.0000)	1(1)



Evaluation of the Impact of Exchange Rate Policy on ... Bello, I. U, Et. al. (2026)

FXR	-6.377287 (0.0000)	1(1)	-6.572975 (0.0000)	1(1)
-----	-----------------------	------	-----------------------	------

Source: Eviews 13

The results of both the Augmented Dickey-Fuller (ADF) and Philip-perron unit root tests revealed that inflation(INF) and foreign direct investment (FDI) were integrated at level,1(0),while manufacturing sector contributions to GDP, exchange rate (EXR), balance of payment (BOP), interest rate and foreign reserves (FXR).The results further indicated the ADF and PP unit root test are two different ways of assessing the order of integration of trending pattern of data in regression analysis. The results revealed the presence of different order of integration, that 1(0) and 1(1), justifying the need for the estimation of the mode using the Autoregressive Distributed Lag (ARDL) estimation technique.

Table: Results of ARDL Short-Run Estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(MGDP(-1))	-0.145917	0.102694	-1.420893	0.1831
D(MGDP(-2))	-0.544033	0.128601	-4.230385	0.0014
D(BOP)	0.164474	0.044570	3.690266	0.0036
D(BOP(-1))	0.003034	0.027486	0.110392	0.9141
D(BOP(-2))	0.082227	0.029754	2.763522	0.0184
D(EXP)	0.266411	0.800870	0.332652	0.7457
D(EXP(-1))	-5.988046	1.265822	-4.730559	0.0006
D(EXR)	0.007246	0.005795	1.250471	0.2371
D(EXR(-1))	0.041319	0.013609	3.036092	0.0113
D(EXR(-2))	0.234912	0.029707	7.907515	0.0000
D(EXR(-3))	0.041939	0.019752	2.123304	0.0572
D(EXS)	-5.809726	0.812873	-7.147151	0.0000
D(EXS(-1))	1.365552	1.117211	1.222287	0.2471
D(EXS(-2))	1.468303	0.639979	2.294300	0.0425
D(EXS(-3))	4.338229	0.648818	6.686361	0.0000
D(FDI)	0.044448	0.085603	0.519231	0.6139
D(FDI(-1))	-1.231743	0.193127	-6.377908	0.0001
D(FDI(-2))	-1.058788	0.155896	-6.791616	0.0000
D(FDI(-3))	-0.371417	0.100246	-3.705063	0.0035
D(FXR)	0.163182	0.029840	5.468553	0.0002
D(FXR(-1))	0.491533	0.070114	7.010452	0.0000
D(FXR(-2))	0.350105	0.060227	5.813137	0.0001
D(FXR(-3))	0.312851	0.068144	4.591048	0.0008
D(INF)	-0.019672	0.015189	-1.295196	0.2218
D(INF(-1))	0.011747	0.012543	0.936533	0.3691
D(INF(-2))	0.064743	0.014149	4.575830	0.0008
D(INT)	-0.404728	0.082860	-4.884454	0.0005
D(INT(-1))	-0.136646	0.082348	-1.659370	0.1253
D(INT(-2))	-0.211217	0.059794	-3.532403	0.0047
CointEq(-1)*	-0.322724	0.130677	-7.826325	0.0000
R-squared	0.925361	Mean dependent var	0.106800	
Adjusted R-squared	0.817134	S.D. dependent var	1.785749	
S.E. of regression	0.763638	Akaike info criterion	2.582263	
Sum squared resid	11.66285	Schwarz criterion	3.729477	
Log likelihood	-34.55657	Hannan-Quinn criter.	3.019129	
Durbin-Watson stat	2.239436			

Source: Eviews 13

The results of short-run estimation in Table 3 revealed that MGDP (-1) had a coefficient of 0.145917 and probability value (p-value) of 0.1831, which means that at lag one, MGDP in the short-run had an insignificant negative effect of the current value of MGDP as a measure of manufacturing sector performance. The findings showed that MGDP (-2) had a coefficient



Evaluation of the Impact of Exchange Rate Policy on ... Bello, I. U, Et. al. (2026)

of -0.544033 and p-value of 0.0004 or $p < 0.05$. This implies that two years previous values of MGD_P had significant negative effect on its current value. The implication of this finding is that in the short-run, the current value of manufacturing sector performance does not depend on its previous values. The results of analysis revealed that balance of payment (BOP) had a coefficient of -0.544033 and p-value of 0.0014 or $p < 0.05$. The results support theoretical postulation that balance of payment is supposed to impact positively on manufacturing sector performance in Nigeria. The t-statistic of -4.230385 falls within the rejected region; hence the null hypothesis was rejected and the conclusion is that BOP in the current period had significant negative effect on manufacturing sector performance in Nigeria. This implies a unit increase in BOP was associated with 54.4% decreases in manufacturing sector performance in Nigeria. This could be attributed to the over-dependence of Nigeria on foreign manufactured goods, leading to excessive spending and unfavourable balance of payment. Furthermore, the results showed that exchange rate (EXR) had a coefficient of 0.007246 and p-value of 0.2371 which means $p > 0.05$. This contradicts the *a priori* expectation, a situation that could be attributed to the volatile nature of the dollar to naira exchange rate experienced in Nigeria that led to currency depreciation. However, EXR(-1) had a coefficient of 0.041319 and p-value of 0.0113 or $p < 0.05$. The t-statistic had a coefficient of 3.036096 signifying that it falls within the rejection region; hence the study rejected the null hypothesis and the conclusion drawn is that in the short-run, the two years previous values of exchange rate had significant positive effect on manufacturing sector performance. Similarly, the results established that foreign direct investment (FDI) in the sector had a coefficient of 0.044448 and p-value of 0.6139, indicating an insignificant positive effect of current value of FDI on manufacturing sector performance. The positive coefficient of FDI agrees with the assumption in theory that foreign direct investment is expected to impact positively on manufacturing sector performance in the domestic economy, owing to its perceived role in raising local output and contribution of the sector to the Gross Domestic Product. The findings showed that FDI(-1) had a coefficient of -1.231743 and p-value of 0.0001 or $p < 0.05$, meaning that the t-statistic falls within the rejection region. Based in this, the null hypothesis was rejected and the conclusion drawn is that one-year previous or lag value of FDI had significant negative effect on manufacturing sector performance. Also, foreign exchange reserves (FXR) had a coefficient of 0.163182 and probability value of 0.002 which is less than 0.05 level of significance. The null hypothesis was rejected because the t-statistic of 5.468553 was found to be in the rejection region and the study concluded that in the short-run, FXR had significant positive effect on manufacturing performance in Nigeria. The findings support with the expectation in economic theory because foreign exchange reserve is expected to be used stabilize the economic whenever there are negative shocks; hence the relationship between FXR and manufacturing sector performance is expected to be positive and significant. The results further revealed that a unit increase in foreign exchange reserves leads to about 16.32% significant effect of the performance of the manufacturing sector in the economy. This justifies the theoretical postulation that an increase in reserves, raises domestic production and exports promotion. Also, exchange rate implementation regime dummy (EXP) had coefficient of 0.266411 with a p-value of 0.7457 or $p > 0.05$, while EXP(-1) had a coefficient of 0.041319 and a probability value of 0.0113 which means that $p < 0.05$. These findings imply that current value of exchange rate implementation dummy had insignificant positive effect, while previous year value of exchange rate implementation policy dummy had significant positive effect on the performance of manufacturing sectors in Nigeria. This implies that an increase in manufacturing sector performance was attributed to the implementation of floating exchange rate policy. The findings showed that exchange rate implementation status (EXS) dummy which measures the effect of full or managed exchange status on the performance of manufacturing sector had a coefficient of -5.809726 and a probability value of 0.6139, which shows that $p > 0.05$, while the two years previous value of EXS (-2) had a coefficient of 1.468303 and probability value of 0.0425 which shows that $p < 0.05$, indicating that the current value of exchange rate implementation status (EXS) dummy had insignificant negative effect on the performance of manufacturing sector, while two years previous value of exchange rate implementation status (EXS) dummy had significant positive effect on the performance of manufacturing sector in Nigeria. The positive and negative coefficients of EXS suggest in Nigeria, the exchange rate implementation status have witnessed periods of both favourable and unfavourable exchange rate despite the exchange rate regime implemented. These findings could be link to economic realities experienced in Nigeria over the years. For instance, due to the oil boom of 1970 to 1970, there was stability in the exchange rate, making the policy favourable but between 1981-1993 the exchange implementation was unfavourable to the domestic economy because of the oil price crash that was associated with devaluation of currency. Also, between 1993 to 1999 the policy was unfavourable because of political instability and foreign exchange restriction. Again, by 1999 to 2007, favourable exchange was experienced as results of the



Evaluation of the Impact of Exchange Rate Policy on ... Bello, I. U, Et. al. (2026)

implementation of economic reforms including managed exchange rate policy and increased foreign reserves. Nigeria also experienced an unfavourable exchange rate between 2008 to 2016 majorly due to the emergence of the global financial crisis attributed to collapse of the U.S Prime mortgage and oil crash, but by 2017 to 2019, foreign exchange reforms were implemented leading to increased reserves and favourable exchange rate policy. Furthermore, between 2020-2023, the outbreak of the covid-19 pandemic led to unfavourable exchange rate in Nigeria, because the pandemic led to the implementation of many protocol that affected production, including manufacturing sector performance. The results of the adjusted R square revealed that 81.71 percent of the changes or variations in manufacturing sector performance were explained by changes or variables in the explanatory variables of exchange rate policy and the conclusion is that the estimated model was found to be a good-fit of the relationship between exchange rate policy and manufacturing sector performance in Nigeria.

Discussion of Findings

The findings from reviewed literature revealed that over the years, both the fixed and floating exchange rate policy have been implemented, but the impact of each regime on manufacturing sector is still a debating issue in Nigeria. The results of short-run estimation revealed that manufacturing sector contributions to the Gross Domestic Product (MGDP (-1)) had significant negative effect on its current value of manufacturing sector performance. That is, in the short-run, the manufacturing sector performance does not significantly depend on its previous year value. The results of analysis revealed that balance of payment (BOP) had significant negative effect on manufacturing sector performance in Nigeria. This could be attributed to the over-dependence of Nigeria on foreign manufactured goods, leading to excessive spending and unfavourable balance of payment. This findings supports that of Adebajo, Oluwasegun, Adegbola, Festus, Peter, Ben-Caleb, Bamisele, Niyi-Oyebanji and Damilola (2019) who reported that exchange rates, imports and manufacturing foreign direct investment have a negative significant relationship with the performance of the Nigerian manufacturing sector, but contradicted that of Onwuka (2021) who found that in the long run import which is an integral component of balance of payment had insignificant positive effect on manufacturing performance in Nigeria. The findings revealed that short-run exchange rate (EXR) had insignificant positive effect on manufacturing sector performance, while two years previous values of exchange rate had significant positive effect on manufacturing sector performance. This implies that in the short-run, an increase in exchange was associated with an insignificant increase in manufacturing sector performance. Adebajo, Oluwasegun, Adegbola, Festus, Peter, Ben-Caleb, Bamisele, Niyi-Oyebanji and Damilola (2019) in their study revealed a devaluation of the Naira has a negative impact on the performance of the Nigerian manufacturing sector as it was found that exchange rate has a negative significant long run relationship with the performance of the sector. The long-run results showed an insignificant negative effect of exchange rate on manufacturing sector performance in Nigeria. Tonye and Gbarawae (2023) found a positive and statistically significant relationship between the exchange rate and the performance of the manufacturing sector. Also, the insignificant negative effect of exchange rate on manufacturing sector performance which agrees with economic theory suggest that even if there is appreciation in the value of domestic currency, the effect may real sector activities, including manufacturing sector may not last long because of the volatile nature of exchange rate and instability in the financial sector in Nigeria. This supports the findings of Udeagbala (2022), that the low performance of the sector could be attributed to the scarcity of foreign exchange, difficulty in access to credit, rising cost of raw materials, high cost of energy and poor infrastructural facilities. The results revealed that short-run foreign direct investment (FDI) had insignificant positive effect of current value of FDI on manufacturing sector performance. Contrary to this, Nwafor (2022) in their study found a negative correlation between FDI and manufacturing output, and that this correlation is statistically significant. The long-run findings showed a significant positive effect of foreign direct investment on manufacturing sector performance. The positive relationship between FDI and manufacturing sector performance agrees with the assumption in theory that foreign direct investment is expected to impact positively on manufacturing sector performance in the domestic economy, owing to its perceived role in raising local output and contribution of the sector to the Gross Domestic Product. The findings showed that foreign exchange reserves (FXR) in the shot-run had significant positive effect on manufacturing performance in Nigeria, while long-run estimates indicated that foreign reserves had significant positive effect on manufacturing sector performance. This agreed with the findings of Oke and Olaiya (2021) who found foreign reserve has a positive effect but in significant effect on Nigerian manufacturing sector's performance. The findings support with the expectation in economic theory because foreign exchange reserve is expected to be used stabilize the economic whenever there are negative shocks; hence the relationship between FXR and manufacturing sector



Evaluation of the Impact of Exchange Rate Policy on ... Bello, I. U, Et. al. (2026)

performance is expected to be positive and significant. This results further validate the theoretical postulation that an increase in foreign or external reserves, raises domestic production and exports promotion. The results of analysis found that inflation rate (INF) had in the short-run, the current value of inflation had an insignificant negative effect on the performance of manufacturing sector. Ogbu (2018) studied the relative effect of interest and currency rate variations on industrial production in Nigeria and found that interest rate and currency rate changes had short term positive influence on the production of manufacturing sector, which implies that manufacturing output in Nigeria is a function of interest and currency rates. Anthonia and Taiwo (2017) examined the impact of interest rate changes on Nigeria's manufacturing sector. The empirical findings showed that interest rates had a detrimental effect on value added and capacity utilization in Nigeria's manufacturing sector. It was also shown that interest rate changes have a long-term effect on the productivity of Nigeria's industrial sector. In the long-run also, inflation had insignificant statistically negative effect on manufacturing sector performance in Nigeria. This finding supports inverse relationship that exist between inflation and manufacturing sector performance because it indicates that the higher the price level, the higher the cost of incurring inputs like raw materials required for increased production in manufacturing sector. Oduor *et al.*, (2021) investigated the effect of inflation on growth of manufacturing sector and found that inflation has a statistical and significant negative effect on the growth of the manufacturing sector. The negative relationship between the variables further justifies the assumption in literature that inflationary pressure in the economy lowers manufacturing sector output and supply which are key measures of performance. Ugwoke (2022) found that the manufacturing sector which depends heavily on imported raw materials and capital and intermediate goods has severely been affected in recent time by the sharp decline in the value of naira and the concurrent rise in the exchange rate. In Nigeria, inflation remains a serious macroeconomic problem that have negative multiplier effects on both the money and real sectors of the economic owing to its impact on money demand and cost of production. Adegbenmi (2018) carried out a study on the macroeconomic dynamics and the manufacturing output in Nigeria and found that there exists a negative relationship between inflation rate, interest rate, exchange rate, broad money supply and manufacturing output. The results indicated that in the short-run, interest rate (INT) had significant negative effect on manufacturing sector performance in Nigeria. The long-run coefficient also revealed that interest rate had significant negative effect on manufacturing sector performance. Onwuka (2021) study found that exchange rate volatility, interest rate and inflation rate had a negative impact on the performance of manufacturing sector in the long run while import and gross capital formation have a positive effect on manufacturing performance in the long run. The finding from both the short-run and long-run results is in consonance with the expectation in economic theory that manufacturing sector performance is inversely related to the interest rate because an increase in interest rate makes loanable funds expensive and lowers money demand and investment in the goods sector, thereby limiting output and manufacturing sector performance in Nigeria. Chukwuani and Ezeudo (2018) found that inflation rate and interest rate have significant impact on manufacturing sector output both in the short-run and long-run and recommended that adequate allocation of credits to the sector will positively increase the sectoral output which will in turn promote economic growth and development. Also, the analysis showed that in the short-run, exchange rate implementation regime dummy (EXP) had insignificant positive effect, while previous year value of exchange rate implementation policy dummy had significant positive effect on the performance of manufacturing sectors in Nigeria. The long-run estimates showed that exchange rate implementation regime policy had insignificant positive effect on manufacturing sector performance. These findings indicates that in both short-run and long-run, the effect of exchange rate policy regime implemented which could be fixed or floating on manufacturing sector performance was found to be positive and statistically insignificant. Nwokoro (2017) stated that improving the performance of the manufacturing sector by reducing import dependence and promoting manufacturing for export, one of the major objectives of the reform was exchange rate deregulation which allowed exchange rate determination to be market driven. In Nigeria, the fixed exchange regime implemented between 1970 to 1985 was associated with favourable exchange rate, while floating exchange rate implemented between 1986 to 1999 led to an unfavourable exchange rate. This justifies the fact that the stability of exchange regime and its effect on real sector activities in developing countries like Nigeria that are characterized by the Dutch disease syndrome and also vulnerable to external shocks in international market, the effect of exchange rate policy may not only be insignificant, it may be for a short-term. This may be so because if there is an increase in the exchange rate, domestic currency depreciates, thereby impacting negatively on manufacturing sector, while a decrease in exchange rate leads to domestic currency appreciation and increase manufacturing sector performance, but this may not last longer because of the volatile nature of the exchange rate. Nsofo,



Evaluation of the Impact of Exchange Rate Policy on ... Bello, I. U, Et. al. (2026)

Takson and Ugwuegbe (2017) observed that the ability of the manufacturing industry to import input materials depends on the level of the exchange rates. It is evident that most organisations source their inputs externally; hence the devaluation or depreciation of exchange rate tends to impede the performance of the sector. The findings showed that exchange rate implementation status (EXS) dummy had insignificant negative effect on the performance of manufacturing sector. The results revealed that in the long-run; exchange rate implementation status (EXS) had significant negative effect on manufacturing sector performance in Nigeria. These results indicated that in the long-run an increase in exchange rate implementation policy which signifies a depreciation in the value of domestic currency (unfavourable exchange rate policy) was associated with a decrease in the performance of the manufacturing sector. Modebe and Ezeaku (2016) revealed that inflation and interest rate have negative and non-significant effect on manufacturing sector growth while exchange rate appears to positively and significantly influence the growth of manufacturing sector value added. In Nigeria, the exchange rate policy has been largely unfavourable because between 2020 to 2023, the outbreak of the covid-19 pandemic and its associated protocol impacted negatively on manufacturing sector performance. This was the case between 1981 to 1999 that was characterized by global oil crash, devaluation of currency that became the order of the day with the introduction of SAP as well as political instability experienced in the country. The scenario repeated itself between 2008 to 2016 due to the collapse of the U.S Prime Mortgage that caused the global financial crisis and another crash in the international oil prices.

Conclusion

The review of literature shows that in developing economies, exchange rate policy plays a crucial role in real sector activities. The findings revealed that in the short-run results revealed that balance of payment had significant negative effect on manufacturing sector performance. The results revealed that short-run exchange rate had insignificant positive effect on manufacturing sector performance, while the long-run results showed an insignificant negative effect of exchange rate on manufacturing sector performance. The findings showed that foreign exchange reserves in the short-run had significant positive effect on manufacturing performance and in the long-run estimates indicated that foreign direct investment had significant positive effect on manufacturing sector performance. Also, the results showed that in both short-run and long-run, exchange rate implementation regime dummy had insignificant positive effect on manufacturing sector performance. The results revealed that exchange rate implementation status dummy had insignificant negative effect on the performance of manufacturing sector, while in the long-run it had significant negative effect on manufacturing sector performance. The study concluded that exchange rate policy affects manufacturing sector performance in Nigeria.

Recommendations

1. The Central Bank of Nigeria should offer special credit facilities at low interest rate to manufacturers to enable them access investment financial resources necessary for increase manufacturing sector performance.
2. Government should simplify foreign direct regulations and provide functional infrastructure to attract more foreign direct investment in the manufacturing sector so as to raise the sector's output and performance.
3. To ensure that the balance of payment contributes to manufacturing sector activities, government should promote export diversification by providing incentives that encourage a wide range of manufacturing sector firms and export-related products, as well as import substitution policy that promote "made in Nigeria".
4. The government through the monetary authority should implement effective exchange rate management policy to avoid exchange rate swings and encourage manufacturing sector investment stability in order to raise the level of performance of the manufacturing sector.

References

- Abdul-Mumuni, A. (2019). Exchange rate variability and manufacturing sector performance in Ghana: Evidence from cointegration analysis. *International Economics and Business*, 2(1), 1-14.
- Abiola, O. (2018). *Impact of exchange rate volatility on the manufacturing sector growth performance in Nigeria*. Retrieved online from <https://ssrn.com/abstract=4728928>
- Ac-Ogbonna, C. (2021). Fluctuations of macroeconomic variables and manufacturing output: Issues, challenges and prospects of the growth of manufacturing output in Nigeria. *Bullion*, 45 (3), 30-43.
- Adebanjo J. F., Oluwasegun E., Adegbola O., Festus A., Peter O., Ben-Caleb E., Bamisele R., Niyi-Oyebanji M., Damilola E. (2019). Impact of exchange rate on the manufacturing sector in Nigeria, *International Journal of Mechanical Engineering and Technology*, 10(2), 1568-1583.



- Evaluation of the Impact of Exchange Rate Policy on ...* Bello, J. U., Et. al. (2026)
- Adegbeni, B. O. (2018). Macroeconomic dynamics and the manufacturing output in Nigeria. *Mediterranean Journal of Social Sciences*, 9(2), 43-54.
- Akinlo, E. A., & Adejumo, V. A. (2014). *Exchange rate volatility and non-oil exports in Nigeria manufacturing sector in Nigeria from 1986-2016. International digital organization for scientific research Journal of Banking, Economics and Social Sciences*, 3(1), 63-73.
- Andrew O. I., & Omoruyi A. (2018). Exchange rate instability and Nigerian foreign exchange reserves (1993- 2016): Short run and long run analyses. *Amity Journal of Finance*, 3 (1), 50-60
- Anthonia, T. O., & Taiwo, H. S. (2017). Interest rate volatility and Nigeria's manufacturing sector performance. *Alpha-Beta Consulting*
- Central Bank of Nigeria (2021). *Statistical Bulletin*. Abuja: CBN
- Central Bank of Nigeria (2022). *Central Bank of Nigeria Statistical Bulletin annual report July 31, 2022*. Abuja: CBN
- Central Bank of Nigeria (CBN) (2020). *Central bank of Nigeria statistical bulletin*. Abuja: CBN
- Chukwuani, O., & Ezeudo, C. (2018). Impact of commercial Bank sectoral allocation in stimulating real sector output in Nigeria (agriculture and manufacturing sectors). *International Digital Organization for Scientific Research Journal of Arts and Humanities* 3(1), 72-87.
- Dodo, F.E., Kyarem, N.R., & Abdullahi, B. (2023). Effect of exchange rate on foreign reserves in Nigeria: An ARDL approach. *Studies in Economics and International Finance*, 3(1), 7788. <https://DOI:10.47509/SEIF.2023.v03i01.06>
- Douglas, H., Eche, E., & Adi, D. (2023). Impact of interest and exchange rates on the performance of the Nigerian manufacturing sector. *Journal of economics and finance*, 3(2), 46-53
- King-George, O. (2013). The effect of exchange rate fluctuation on the Nigeria manufacturing sector (1986-2010). *Journal of Research in Business and Management*, 1(1), 27-30.
- Mlambo, C. (2020). Exchange rate and manufacturing sector performance in SACU states. *Cogent Business & Management*, 7(1), 1-13
- Modebe, N.J., & Ezeaku, H.C. (2016). Dynamics of inflation and manufacturing sector performance in Nigeria: Analysis of effects and causality. *International Journal of Economics and Financial*, 6(4), 98-106
- Nsofo, E. S., Takson, S. M., & Ugwuegbe, S. U. (2017). Modeling exchange rate volatility and economic growth in Nigeria. *Noble International Journal of Economics and Financial Research*, 2(6), 88- 97.
- Nwafor, M. C. (2022). Interest rate spread, exchange rate and manufacturing output in Nigeria. *GO Uni Journal of Faculty of Management and Social Sciences*, 10(1), 81-109.
- Nwokoro, A. N. (2017). Foreign exchange and interest rates and manufacturing output in Nigeria. *International Journal of Business & Law Research*, 5(1), 30-38
- Oduor, J.W., Ngala, C., Ruto, R., & Abdullahi, U.A. (2021). Effect of inflation on growth of manufacturing sector in Kenya (2008-2017). *Asian Journal of Economics Business & Accounting*, 1(2), 14-19
- Ogbu, E. G. (2018). Relative impact of interest and exchange rate fluctuations on the output of manufacturing sector in Nigeria from 1986-2016. *International Digital Organization for Scientific Research Journal of Banking, Economics and Social Sciences*, 3(1), 63-73
- Oke, M. O., & Olaiya, A. C. (2024). *Foreign reserves and manufacturing sector performance in Nigeria (1991-2021)*. Retrieved from online from: <https://eksujournal.eksu.edu.ng>
- Okoli T. T., Mbah, S. A., & Agu, O. C. (2016). Exchange rate volatility and inflation: The Nigerian experience *Journal of Economics and Sustainable Development*, 7(10), 115
- Okorontah, C.F. & Odoemena, I.U. (2016). Effects of exchange rate fluctuations on economic growth of Nigeria. *International Journal of Innovative Finance and Economics Research*, 4(2), 1-7.
- Onwuka, C.E. (2022). *Exchange rate volatility and the performance of manufacturing sector in Nigeria (1981-2020): An econometric analysis*. Accessed from <https://doi.org/10.21203/rs.3.rs-1111246/v1>.
- Orji, A., Ogbuabor, J. E., Okeke, C., & Orji, O. A. (2018). Another side of the coin: exchange rate movements and the manufacturing sector in Nigeria. *Journal of Infrastructure Development*, 10(1-2), 63-79
- Orji, M.C., & Ezeanyaegi, C.I. (2022). Exchange rate and manufacturing sector performance in Nigeria. *Lapai Journal of Economics*, 6(2), 13-33
- Pesaran, M.H., Shin, Y., & Smith, R.J., (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, 16, 289-326
- Samuel, D.A., & Wale-Odunaiya, E. (2021). Impact of exchange rate undervaluation on manufacturing sector and economic growth in Nigeria. *Journal of Economics and Sustainable Development*, 12(20), 50-60
- Tonye, T., & Gbarawae, N.C. (2023). Effects of exchange and interest rates on manufacturing sector performance in Nigeria: ARCH and GARCH approach. *Gusau Journal of Economics and Development Studies*, 4 (1), 182-198



Evaluation of the Impact of Exchange Rate Policy on ... Bello, I. U, Et. al. (2026)

Udeagbala, I. J. (2022). *Way forward to improve the Nigerian manufacturing sector*. Retrieved from: <https://www.vanguardngr.com>

Ugwoke, T. I. (2022). Inflation and manufacturing output in Nigeria. *Madonna Journal of Economics and Finance*, 1(1), 70-78

Ugwoke, T.I. (2018). *Economic development and planning*. Onitsha: Chibyke Publishers,

World Bank (2020). *World development report*. Washington, DC: World Bank

World Bank (2021). *World development indicators*. Washington, DC: World Bank