Trade Openness and Performance of Manufacturing Sector in Nigeria

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Abstract

Trade amongst countries has been regarded as a potential channel through which the manufacturing sector contributes to the growth of a typical developing economy like Nigeria. However, the contribution of the Nigerian manufacturing sector to the country's economic growth has fluctuated abysmally over the decades of trade liberalization. This paper thus assesses the impact of trade openness on the value- added output growth of the manufacturing sector in Nigeria, using the Structural Vector Autoregressive (SVAR) model to estimate the linkages on secondary data spanning a period of 1985-2023. The variables used in this study include, exchange rate, tariffs, capital, labour and trade openness; while Manufacturing Value Added (MVA) is used to proxy the performance of manufacturing sector. After accounting for structural breaks in the series and ascertaining the stationarity properties of the series, the results indicated that though the lagged trade openness has a positive impact on manufacturing productivity, this is compromised by the negative and significant effect in the current period. This negative nexus is further reinforced by the negative impacts of exchange rate and capital stock on manufacturing productivity. The result of impulse response function revealed that manufacturing productivity responded to its own shocks, tariff, exchange rate and capital are positive; thus, establishing an expansionary effect of exchange rate and tariff devaluation on manufacturing productivity in Nigeria. The study therefore concluded that though trade openness is a strong driver of trade and industrial policies in Nigeria, the net effect thereof is negative and so, it potentially dampens manufacturing output, especially in the long-run. Based on these findings, the study recommended that, the government should adopt proactive trade policies to protect and give competitive advantage to the domestic manufacturers in the domestic, regional and global markets.

Keywords: Trade Openness, Manufacturing, Structural Vector Autoregressive Model, Impulse Response Function, Variance Decomposition

1.0 Introduction

The role of the manufacturing sector to a country's global competitiveness and its internationalization drive cannot be over-emphasized. The preponderance of the role largely hinges on the ability of the sector to supply the domestic and foreign markets with the right quantity and quality of utility-satisfying goods and services with which to

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compete effectively in the international market. On this, Kim (2014) stated that the hope of developing countries, Nigeria inclusive, lied in developing a growth-oriented manufacturing sector, which could aid in industrialization, export diversification, job creation and ultimately the overall economic growth of the countries. He also noted that Nigeria has enormous trade potential, both globally and intra-regionally (for example, due to its natural resource endowment, agricultural potential, and intra-regional complementarities). To accelerate the industrialization drive of Nigeria through manufacturing, trade liberalization was recommended by the International Monetary Fund (IMF) in the 1980s.

In this direction, Nigeria has since been fully integrated into global economic system, having signed many multilateral and regional trade agreements. The policy posture of such agreements on trade policy has been to remove or relax trade restrictions and embark on outward oriented policies. With the liberalization policy, it was expected that the Nigerian economy would reap the acclaimed benefits of trade openness.

According to Tyopev (2019), trade openness refers to the extent to which a country allows the free flow of goods and services across its borders. The key dimensions of trade openness include the liberalization of trade policies, the actual resulting volume of trade in terms of imports and exports; and the overall integration of the country's economy into the global market. The precursors of trade openness entail the relaxation or removal of controls over import, rationalization and general lowering of import and non-tariff barriers, thereby easing cross-border commodity and financial flows. It underscores a country's international competitiveness in the global market (Gwartney, Skipton and Lawson, 2001). Trade liberalization is expected to drive economic growth by boosting demand and promoting productivity through reduced production costs (Iyoha and Oriakhi, 2002; Pegkas, 2015; Hussain and Haque, 2016). More specifically put, trade openness allows a nation to make efficient use of her resources by encouraging importation of goods and services at a lower cost than they could be produced locally as it enables developing countries to import capital equipment and intermediate inputs that are crucial to facilitating growth in the long run which will be expensive to produce locally among other benefits associated with trade openness (Ude and Agodi, 2015). In the same vein, export-oriented industries are expected to spring up to facilitate the foreign exchange earning capacity of the economy as openness supposedly facilitates knowledge and technology diffusion (Okoye, Nwakoby, and Okorie, 2016). A theoretical foundation to these claims was postulated by Grossman and Helpman (1991) who argued that economic openness can lead to technological change by making production more efficient and enhancing productivity.

Cross-border trade has been regarded as a potential channel through which the manufacturing sector contributes to the growth of a typical developing economy like Nigeria (Tyopev, 2019). The country has since transitioned from restrictive import substitution to liberalised trade regime, occasioned by its subscription to the Structural Adjustment Programmes (SAP) championed by the IMF in the 1980s. However, researchers and other stakeholders are yet to reach a consensus on the nature and extent of contribution of the Nigerian manufacturing sector to the country's economic growth over the decades of trade liberalization regime.

Stylized facts in Nigeria indicate that manufacturing sub-sector has performed unsatisfactorily over the years. Since the introduction of trade liberalization, the output of the manufacturing sector with respect to GDP has been fluctuating. From a 4.8% in 1960, manufacturing sector contribution to GDP increased to 7.2% in 1970 to 7.4% in 1975. In 1980 it dropped to 5.4% then increased to a record high of 10.7% in 1985. By 1990, the share of manufacturing output to GDP stood at 8.l% but fell to 7.9% in 1992. 6.7% in 1995 and fell further to 6.3% in 1997. By 2001, the share of manufacturing output to GDP had dropped drastically to 3.4%. However, it increased to 4.23% in 2013 and has since nosedived to 1.64% in 2022 (CBN, 2024). Many factors have been adduced to these abysmal variations many of which show both the vulnerability of the manufacturing sectors to global economic pressures as well as the impacts that policy changes can have in reshaping the sector (CBN, 2024).

A wider outlook portrays that the sub-optimal performance of the manufacturing sector may not be solely attributed to trade liberalization. It is common knowledge that developing countries have significant limitations in terms of what they can contribute to global trade and investment. They basically export primary commodities, making them susceptible to external shocks. Inadequate infrastructure and the small size of their domestic markets also limit their access to foreign markets (Gulati et al. 2007; Chete et al., 2017). Rising trade costs, as well as limited access to technology and intermediate inputs, pose a barrier to developing country firms' entry into global markets and participation in global value chains (Arvis et al. 2013). Arguably, the initial import substitution industrialization (ISI) spurred the development of the capital goods sub-sector, but the backlash effect led to import dependent industrial structures responding negatively to economic downturns, while declining capacity utilization as argued by Chete *et al*. (2014), the continuous protection of the sector in the import substitution period in line with anti-competitive policies in the form of low interest rate led to the sector's difficulty to evolve a persistent rate of growth in a manner that it will compete with the rate of industrialization of vibrant counterparts. Noticeably, these challenges, in addition to trade liberalization, are associate with an under-performing manufacturing sub-sector in the face of trade openness in Nigeria.

These realities have raised fundamental questions amongst researchers about the potency of trade openness in driving economic growth through the manufacturing sector in Nigeria. The empirical literature on the openness-manufacturing nexus largely remains non-concensual. While some studies found a positive linkage, some others reported negative or inconclusive causality. Tahir et al. (2016), Chikabwi et al. (2017), Siyakiya (2017), Mukherjee and Chanda (2017) as well as Lawal and Odetokun (2022) and Cookey (2023) are examples of studies that reported a positive impact of trade openness on the manufacturing sector performance. On the other hand, the efficacy of trade openness in promoting industrial output has been questioned by some other studies. In this direction, Ebenyi et al. (2017), Okoye et al. (2016) and Ogu et al. (2016) reported that trade openness has a negative effect on industrial output.

This seeming inconsistency of theory with empirical findings is the main motivation of this empirical enquiry. Thus, this study specifically seeks to investigate the possible impact of trade openness on the performance of manufacturing sector in Nigeria, with

greater attention given to the possible linkages amongst the explaining variables in order to ensure the robustness of the linkages.

2.0 Literature Review

This section presents a review of relevant literature. It enunciates the conceptual, theoretical and empirical reviews. This is meant to properly contextualize the study in a bid to find existing research gaps and to fill same accordingly.

2.1 Conceptual Literature

2.1.1 Trade Openness

According to Aluko et al. (2022), trade openness refers to the degree to which a country participates in international trade and the extent to which it reduces barriers to trade. Openness generally implies a more liberalized environment, allowing for greater integration into the global economy. Trade openness can be measured by various indicators. The key dimensions of trade openness include the liberalization of trade policies, the actual resulting volume of trade in terms of imports and exports, financial flows; and the overall integration of the country's economy into the global market. The precursors of trade openness entail the relaxation or removal of controls over import, rationalization and general lowering of import and non-tariff barriers, thereby easing cross-border commodity and financial flows. It underscores a country's international competitiveness in the global market (Gwartney, Skipton and Lawson, 2001). The measure adopted in this study is the most generally acceptable measure due to its integrative nature, which is the ratio of a country's total trade (exports + imports) to its GDP.

Promoters of trade liberalization claim that it facilitates efficiency resulting from productive factor reallocation from countries of resource surplus to those of resource deficit. More so, trade liberalization is expected to drive economic growth by boosting demand and promoting productivity through reduced production costs (Iyoha and Oriakhi, 2002; Pegkas, 2015; Hussain and Haque, 2016). More specifically put, trade openness allows a nation to make efficient use of her resources by encouraging importation of goods and services at a lower cost than they could be produced locally as it enables developing countries to import capital equipment and intermediate inputs that are crucial to facilitating growth in the long run which will be expensive to produce locally among other benefits associated with trade openness (Ude and Agodi, 2015). In the same vein, export-oriented industries are expected to spring up to facilitate the foreign exchange earning capacity of the economy as openness supposedly facilitates knowledge and technology diffusion (Okoye, Nwakoby, and Okorie, 2016).Theoretical and empirical literature have claimed that openness facilitates increased consumer choice, technological transfer, improved living standards and a pathway to improved economic growth (Lawal and Odetokun, 2022; Cookey, 2023).

2.1.2 Performance of Manufacturing Sector

Generally, a country development is largely dependent on its industrialization policies and major structural changes (Sign, 2018). A major feature of developed economies is their massive industrial development, for example, the manufacturing industry has been one of the leading contributing sectors to the economic growth of Japan, the USA, and other Asian countries. The manufacturing sector is thus regarded as the engine for structural change needed to culminate in the sustained growth of world economies (Sign, 2018). At independence, Nigeria pursued industrialization policies such as import substitution industrialization in the manufacturing sector, to reduce economic dependence on her colonial masters (Ackah, Charles, Charles Adjasi, and Turkson, 2014). Industrialization in Nigeria which was meant for industrial growth and diversification recorded some modest success in the 1960s.

Trade openness was meant to rescue the manufacturing sector from the attendant abysmal trajectory following some government policies and programmes such as exchange rate overvaluation and trade protectionism during the pre-SAP era. However, trade liberalization failed to deliver the much expected impact on the manufacturing sector (Rodrik, 2014).

A survey of relevant literature shows performance of manufacturing sector has been measured by two strands of proxies, namely process-focused and outcome-focused indicators. The former include production data, costs outlays, capacity utilization measures, and so on. On the other hand, the latter include share of GDP, employment generation, technological deepening, as well as manufacturing value added (Egbon, 2015; Cooker, 2023). This study chooses manufacturing value added as it is an integrative measure that hedges against double counting, thereby regarded as more reliable than other measures both in coverage and precision.

2.2 Theoretical Foundations

A review of the relevant theoretical literature revealed that there are two main schools of thought on the argument about the contribution of trade openness to economic growth via manufacturing performance, namely the exogenous and endogenous strands of the neoclassical growth theorists. The sources of the technological progress constitute the focal point of contention between the two views. The endogenous growth theory, proposed by Romer argues that technological progress is endogenous. It comes from within, it results from investment and knowledge accumulated in the economy. With respect to liberalization, the theory emphasizes domestic investment in capital goods and research and development (R and D) to engender technological progress and economic growth beyond the steady state. So, external sector does not feature prominently in this theory. What matters is investment to drive growth. The theory failed to address the case where there is insufficient domestic savings to invest. In this case, capital and capital goods would have to be imported. Exchange of goods and services and financial assets cannot therefore be wished away (Islam, 1999).

The Solow-Swan exogenous model, on the other hand, argued that technological progress arises from R and D activities around the world. Economies that are open will grow faster through interaction with outside world; while closed economies will grow rather slowly. Thus, closed economies impede FDI flows, R and D, technological diffusion and adoption. This will retard growth. Therefore, opening up the economy to the flow of FDI, goods and services will accelerate growth and development in the developing countries (Feder, 1983; Helpman and Krugman, 1985). The theory stresses the importance of trade liberalization as a strategy for development of the less developed countries, with due recognition given to interventions of authorities concerned, as against classicalists that relied upon the invisible hand for economic calibration (Johansen, 1991). To this end, this study is underpinned by this theory as it is essentially out to test the empirical veracity thereof within the chosen time period in Nigeria.

2.3 Empirical Review

The relevant empirical literature indicates that the causal relationship between trade openness and the performance of the manufacturing/industrial sector exhibits mixed results. The theoretical propositions indicate that while trade openness leads to greater economic efficiency, market imperfections, differences in technology and endowments may dampen such effects. As a result, while some studies found a positive linkage, some others reported negative or inconclusive causality.

Chikabwi et al. (2017) investigated the major drivers of manufacturing productivity from the selected member countries of SADC covering the period between 2000 and 2013. They established that trade openness, capital investment and technology transfer have a positive effect on rhe manufacturing sector productivity growth. Siyakiya (2017) examined the relationship between trade openness and national productivity for selected African countries covering the period between 1980 and 2014. The results from a pooled ordinary least square technique reported that trade openness has a positive impact on manufacturing and service value added.

Dutta and Ahmed (2004) and Chandran and Munusamy (2009) concluded that there is a positive long-run relationship between trade openness and manufacturing output in Pakistan and Malaysia respectively. In a study covering the period 1997 and 2003, Wong (2006) found that trade openness enhanced the productivity of export-oriented industries in the manufacturing sector in Ecuador in the years following trade reforms. Tahir et al. (2016) reported that trade openness has a positive effect on industrial output in South Asian Association for Regional Cooperation (SAARC) member economies. Mukherjee and Chanda (2017) as well as Lawal & Odetokun (2022) and Cookey (2023) found that trade liberalisation has a positive effect on the productivity and profitability of manufacturing firms in India. The authors however, report that trade liberalisation enhanced the performance of large firms as opposed to Small and Medium enterprises.

The efficacy of trade openness in promoting industrial output has been questioned by some studies. Ebenyi et al. (2017) found that the Nigerian manufacturing sector does not respond positively to the export potentials. This may be on account of the high cost of production in Nigeria which put the manufacturing sector at a disadvantage to compete

internationally. Another Nigerian study conducted by Okoye et al. (2016) reported that trade openness has a negative effect on industrial output. Ogu et al. (2016) also reported that trade openness hurts manufacturing output in the short run.

The authors utilised a spectrum of econometric methodologies ranging from ordinary least squares (OLS), Dynamic ordinary least squares (DOLS), Fully Modified Ordinary Least Squares (FMOLS), cointegration methods such as the Autoregressive Distributed Lagged (ARDL) model as well as the Johansen test augmented with error correction models.

3.0 Methodology

This section lays out the scientific approach deployed in the collection and analysis of data in a bid to achieve objectives of the study.

3.1 Research Design

This study employed a quantitative ex-post facto research design, relying upon annual secondary data from 1985 to 2023 obtained from published and verifiable sources. Labour force (LBF), investible capital (CAP) and manufacturing value added (MVA) were sourced from National Bureau of Statistics (NBS). While data on exchange rate (EXR) and the rate of tariff (TAR) were sourced from Central Bank of Nigeria (CBN), trade Openness (TOP) was sourced from the World Development Indicators for Nigeria (WDI). This period of investigation is premised on the era being one of pronounced macroeconomic volatile business cycles, characterized by unfavorable balance of payments and exchange rate volatility, high factor and commodity prices, due largely to economic rigidities which exposed the country to global economic shocks.

3.2 Estimation Techniques

The estimation procedure involved the following three stages: pre-estimation diagnostics, the Structural Autoregressive (SVAR) Model and post-estimation diagnostics.

3.2.1 Pre-Estimation Diagnostics

The study examined the stationarity properties of the data using three traditional tests without break and another three to capture breaks in the series. The three traditional tests are the Phillips-Perron (PP), Augmented Dickey-Fuller (ADF) and the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) tests. To check for structural breaks, the Perron and Vogelsang (2006) test for unit roots was carried out. This is to hedge against spurious results from the main estimation technique.

3.2.2 The Main Estimation Technique: Structural Autoregressive (SVAR) Model

In line with the objective of this paper, there is the need for dynamic analysis which links trade, industrial policy and manufacturing sector growth which is recent and emerging. In this study, the Structural VAR (SVAR) technique was employed to capture the relative interaction of the identified determinants of trade and industrial policies in Nigeria. Using

SVAR is much better to examine the short and long run causality dynamics, provided the variables are cointegrated (Ang & McKibbin, 2007). A major advantage of SVAR is that in the system, there is absence of discrimination between the exogenous and endogenous variables. Hence, all the variables are taken as endogenous.

3.2.3 Post-Estimation Diagnostics

The model was further diagnosed for the relative variation in a variable in terms of its own value and in the value of other variables. This was achieved using Impulse response function (IRF) and the Variance Decomposition.

3.3 Model Specification

The objective of this study is to examine the impact of trade openness and the performance of manufacturing sector. For this purpose, the model adapted for this study is predicated on the Solow-Swan exogenous growth model which accounts for external factors as determinants of economic growth of an economy. The empirical model of the study is a modified model of Cookey (2023). The model is derived from the conventional Cobb-Douglas production function in which foreign resources is introduced as an input in addition to labour and domestic capital. In the usual notation, the production function can be written as follows:

$$Y = AK^{\alpha}L^{\beta}$$

Where, K is capital formation, L is labour force and A is the Solow-Swan residual or Total Factor Productivity (TFP). In addition, α and β are output elasticities of capital and labour respectively and $\alpha+\beta=1$. According to Umoh and Effiong (2013), the TFP is a separately additive function of several variables including level of technology, institutional quality, foreign direct investment, foreign aid, trade openness. Hence, we specify the implicit functional model of openness-manufacturing sector output growth nexus in Nigeria as:

$$MVA = f(CAP, LBF, TOP, EXR, TAR)$$

The implicit function above is transformed to explicit econometrics model as follows:

$$MVA_i = \alpha_0 + InCAP_i\alpha_1 + InLBF_i\alpha_2 + InTOP_i\alpha_3 + InEXR_i\alpha_4 + InTAR_i\alpha_5 + \mu_i$$

Where:

MVA_i is manufacturing sector value added to GDP;

CAP_i = Capital (measured by gross fixed capital formation in the context of this study,

LBF_i = labour force;

TOP = trade openness measured by (imports + exports)/GDP; an index ranging from 1 to 100; EXR_i = exchange rate; and

and TAR_i = tariff rate.

α_0 is a constant; $\alpha_1 \dots \alpha_6$ are model parameter estimators and μ_i is a white noise error term.

4.0 Results and Discussion

This section presents the empirical results and discusses the findings.

4.1 Pre-Estimation Diagnostics: Stationarity Tests

The stationarity tests without and with structural breaks are presented in subsections 4.1.1 and 4.1.2.

4.1.1 Unit Roots Tests without Structural Break

Table 1 presents the results of the three stationarity tests without structural breaks: namely Augmented Dickey-Fuller (ADF), the Phillips-Perron (PP), and the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) tests.

Table1. Results of Unit Root

Variable	ADF	PP	KPSS
MVA	-1.7834	-1.7795	0.1929**
CAP	-1.8252	1.8240	0.1925**
LBF	-1.3868	1.3868	0.1965**
TOP	-1.3955	1.3955	0.1964**
EXR	-1.3992	-1.3992	0.1944**
TAR	-1.6534	-1.7854	0.1935**
ΔMVA	-4.9963*	-4.9597*	0.0809
ΔCAP	-4.8928*	-4.8431*	0.0828
ΔLBF	-3.4709**	-7.7374*	0.0714
ΔTOP	-3.4545***	-7.7280*	0.0719
ΔEXR	-7.7316*	-7.8686*	0.0644
ΔTAR	3.6648**	7.4777*	0.0574

***, ** and * indicate rejection of the null hypothesis at 10%, 5% and 1% level respectively.

Source: Authors' computation (2025)

From Table 1, all three unit root tests indicated that all the variables are stationary at first difference. Thus, at levels is rejected for all the variables. All three test results are consistent. The result of the unit root test with structural break by Perron-Volgesan (2006) is presented in the next subsection.

4.1.2 Unit Roots Tests with Structural Breaks

Table 2 presents the results of the Perron-Vogelsan (2006) stationarity test to cater for possible structural breaks.

Table 2: Unit Root Tests with a Structural Break

Variable	Innovational Outlier Model		Additive Outlier Model	
	T-statistics	Break Date	T-statistics	Break Date
MVA	-4.1259	2011	-3.9041	1989
CAP	-3.1392	1989	-7.5776*	1988
LBF	-3.0358	1994	-3.5700	1989
TOP	-3.0231	2014	-3.2383	1993
EXR	-3.7685	1988	-3.6472	1989
TAR	-3.1674	2012	-3.4231	2005
ΔMVA	-8.9549*	1997	-5.3130*	1988
ΔCAP	-9.2988*	1991	-5.2050**	1996
ΔLBF	-7.7369	2015	-8.9324*	1994
ΔTOP	7.7341*	2000	-8.9281	2010
ΔEXR	-7.7417*	2017	-8.6081	2007
ΔTAR	-9.7598*	1981	-8.6735	2014

Note: * and ** denote significant at the 1 and 5 percent level.

Source: Author's computation (2025)

The results in Table 2 show that the null hypothesis of a unit root with break can't be rejected at every point except for CAP in the additive outlier, implying that there is stationarity in all the variables after first difference. The difference in the break dates is imperative, due to difference in the framework employed, it is necessary to state that the results are consistent for the two types of models. In line with the results of the unit root tests conducted, it is therefore correct to conclude that the series each contains a unit root with a break. The SVAR results are presented in the next sub-section.

4.2 The Structural Autoregressive (SVAR) Model

The result of the SVAR short run parsimonious model for the study is presented in Table 3..

Table 3: SVAR Short run Parsimonious Result

Variable	Coefficient	St. Error	T-statistics	Prob
C	0.13596	0.05663	2.40096	0.0220
DMAN (-1)	0.69810	0.07986	8.7419	0.0000
DLCAP	0.14449	0.05754	2.51020	0.0260
DLTOP(-1)	0.47194	0.29459	0.60203	0.1248
DLCAP(-1)	-0.02120	0.05557	-0.3814	0.6090
LTOP	-0.14511	0.06177	-2.3492	0.0253
DLLBF	1.08840	0.39349	2.7661	0.0260
DLLBF(-1)	1.1266	0.3139	3.5892	0.0033
DLTAR	0.8802	0.3255	-2.9803	0.0306
DLTAR(-1)	0.19697	0.08558	-2.4185	0.0710
DLEXR (-1)	-0.38484	0.06592	-5.83828	0.0011
ECM(-1)	-0.88878	0.12396	-7.16979	0.0001
Diagnostics				
R^2 = 0.977365 Adjusted R^2 = 0.842094			F-statistic(prob.)= 9.274(0.0024) Durbin-Watson stat = 2.26684.	

Source: Authors' computation (2025)

In Table 3, tariff exhibited a positive sign and statistically significant at 5% both in current and lagged values which might be a result of preferential import tariff rates favourable to manufacturing equipment. In other words, 1% increase in current and one period lagged value of tariff will increase the manufacturing sub-sector by 88% and 20% respectively in the short run. Similarly, the coefficient of exchange rate is negative, but statistically significant with manufacturing sub-sector. This means that a 1% rise in exchange rate led to 21% decrease in manufacturing performance, all things being equal.

The result further revealed the goodness of fit of the model with R-squared and adjusted R-squared of 0.977 and 0.842 respectively. Simply put, the result of adjusted R^2 shows 84 % of total variation in the dependent variable was accounted for by variations in the

independent variables. This implies the estimated model has high explanatory power. The result of the F-statistic with 9.23 shows the model is significant. The probability value of the F-statistics established that the coefficients are jointly statistically significant. Hence, the model is statistically significant, revealing that there is a high degree of linear relationship amongst the variables employed in the model.

Similarly, the Durbin-Watson statistic of 2.26 is within the acceptable region signifying absence of autocorrelation. The result further revealed the residuals were not correlated implying no serial correlation in the model.

In what follows, the SVAR analysis proceeded to utilize structural innovation accounting through variance decomposition and response impulse function derived from short-run response restriction matrices.

4.3 Post-Estimation Diagnostics

The SVAR results were further diagnosed with the aid of variance decomposition and Impulse response function and the diagnostics are presented in Table 4 and Table 5 respectively.

Table 4: Variance Decomposition Result

Period	Standard Error	Shock 1 TAR	Shock 2 EXR	Shock 3 TOP	Shock 4 LBF	Shock 5 CAP	Shock 6 MVA
1	0.064657	18.0000	0.06589	0.4613	0.79034	0.96512	89.6531
2	0.7418	22.6513	1.11134	7.8961	1.03477	3.11298	73.7332
3	0.8024	29.0672	3.4525	9.1573	1.8922	2.4308	63.7204
4	0.8489	33.2928	3.7701	1.1417	2.9687	6.8266	53.8251
5	0.9015	41.0420	3.4212	6.2241	1.5439	10.7688	44.6238
6	0.9631	41.6158	3.9128	8.3388	2.6718	13.4608	35.9147
7	0.1028	50.9915	4.9296	12.3738	4.1329	15.5721	28.2757
8	0.1092	50.4473	6.0536	14.3468	5.6562	17.4961	18.6193
9	0.1154	56.2754	7.1459	15.3104	7.1141	19.1541	16.9387
10	0.1214	62.6569	8.1613	19.2924	8.4782	20.4112	11.2022

Source: Authors' Computation (2025)

According to Table 4, manufacturing productivity significantly accounted for its own variations with a diminishing effect, failing from 89.6 percent in the first year to as low as about 11 percent in the tenth year. Shocks to tariff accounted for the second most

significant variations in manufacturing productivity: with progressive increase noticeable over time. The impact rose from 18.0 percent in the first year to as high as 63 percent.percent in the tenth year. Similarly, trade openness also recorded increasing variations in manufacturing productivity overtime rising from 0.46 in the first year to 19 percent in the tenth year with a peak 19.3 percent recorded in the tenth year. Capital, labour force and exchange rate also influenced manufacturing productivity progressively overtime.

By implications, the result shows that variations in manufacturing productivity responded to policy and non-policy shocks with a lag. It suffices to say therefore that policy consistencies are crucial for lubricating gains from trade liberalization for Nigeria. Variations in trade openness to manufacturing productivity shocks show a long run profile which implies trade openness flow to manufacturing sector in Nigeria appears negligible in the short run. Tariff, exchange rate, labour force and capital shocks produce marginal variations in trade openness in the short run with progressive influence noticeable in the long run.

Table 5: Impulse Response Function

Period	Shock 1 TAR	Shock 2 EXR	Shock 3 TOP	Shock 4 LBF	Shock 5 CAP	Shock 6 MVA
1	0.012387	0.001791	-0.005298	-0.01621	0.074752	0.074752
2	0.04663	0.02332	-0.03914	-0.02626	0.02511	0.060612
3	0.035001	0.014102	-0.038472	-0.01938	0.028155	0.045998
4	0.025332	0.019496	-0.02864	-0.03284	0.038221	0.03801
5	0.024925	0.023686	-0.023734	-0.03874	0.034221	0.030244
6	0.022667	0.024954	-0.016845	-0.03353	0.041123	0.024975
7	0.022668	0.025705	-0.009721	-0.03195	0.048531	0.018177
8	0.033748	0.026211	-0.004704	-0.03037	0.017153	0.012797
9	0.023054	0.029511	-0.000376	-0.02741	0.021171	0.007449
10	0.024002	0.026408	-0.003408	-0.02351	0.031171	0.002507

Source: Authors' Computation (2025)

Table 5 presents the impulse response result with manufacturing value added responding to its own shocks (shock 6), tariff, exchange rate and capital are positive, while trade openness and labour force shocks are negative. The expansionary effect of exchange rate and tariff on manufacturing productivity was established in Nigeria. This suggests that the role of exposure to external economies in explaining trade and industrial policy in

Nigeria may be slow, but it will significantly enhance the manufacturing productivity in the long run. The impulse response pattern also shows that degree of openness has short run contractionary effect on manufacturing productivity, but potential expansionary effects in the long run.

In the same vein, the response of the manufacturing productivity and tariff is induced by the other policy variables. The response of the manufacturing sector shows the significance of tariff to its own shock. This implies that tariff channels are important variable that rejuvenate openness-growth nexus. Also tariffs response to exchange rate, trade openness, labour force and capital though marginal, portrays the appropriateness of stringent policy options for facilitating deliverables of external trade interactions in Nigeria, especially with respect to manufacturing sector. This further reinforces the importance of labour force and capital for investment and suggests the desirability of greater attention of authorities to a blend of trade and industrial policy that facilitate human capital development via technology transfer as well as seamless capital inflows targeted at the manufacturing sector in Nigeria.

5. Conclusion and Recommendations

Trade policies in Nigeria are expected to spur growth of the manufacturing sector. The sub-optimal performance of the manufacturing sub-sector raises questions amongst researchers and policy makers on robustness of trade openness for enhancing manufacturing sector in Nigeria. This spurred the investigation of the impact of trade liberalization on the growth of manufacturing sector, using Structural Vector Autoregression (SVAR) technique, covering a period of 1985-2023. The empirical results revealed that trade openness is positively related to and a key factor in enhancing manufacturing sector performance in Nigeria, albeit sub-optimally. Tariff rate was found to have a negative impact on manufacturing sector growth. It is thus concluded that trade liberalization has supported the little progress of manufacturing sector in Nigeria. The result further revealed that exchange rate exhibits a dampening impact on the manufacturing productivity in Nigeria. The result of the variance decomposition shows that shocks to tariff accounted for the second most significant variations in manufacturing productivity, with progressive increase noticeable over time. More so, The impact rose significantly in the tenth year. The result of impulse response function established the expansionary effect of exchange rate and tariff devaluation on manufacturing productivity.

The paper therefore recommends that Nigeria should strive to maximize her gains from external trade by increasing trade openness by ensuring stability and openness-orientation of trade related shocks especially exchange rate and tariff. This is expected to attract inflows of external investible funds and technology. In addition, Nigerian authorities should give adequate attention to manufacturing-oriented internal shocks such as robust human capital development and a financial sector development that can make retention of local capital flows attractive to both domestic and foreign investors.

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