
OVER THREE DECADES OF TRADE LIBERALISATION IN NIGERIA: IMPLICATIONS FOR INDUSTRIAL REVOLUTION

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Abstract:

The quest for a self-reliant and industrialised economy made Nigeria adopt several policies, over the years, towards opening up the economy to the industrialised world. The 1986 structural adjustment programme and other successive reforms were aimed at liberalising the economy. This study, using the ARDL bounds testing approach and interaction of trade liberalization dummy with trade openness, investigates if trade liberalization led to industrialization or de-industrialisation during the period under review and finds that trade liberalisation actually led to de-industrialisation but the interaction of trade liberalization and trade openness has positive effect on industrialization. The study recommends that liberalization of the economy should be handled with caution and should be accompanied by dynamic and flexible trade policies that will boost exports, especially industrial exports.

1. INTRODUCTION:

The belief that industrialisation is a *sine qua non* in a nation's desire to achieve the degree of self-reliance which can guarantee the stability needed for economic development has attracted the interest of governments in laying a solid foundation for the development of the industrial sector. Most developing and underdeveloped economies embarked on trade liberalization in the early 1980s and massively in 1990s believing that it would lead to industrial revolution/industrialisation which would in turn have positive impacts on the economy – a massive engine driving productivity gains, economic growth, business success, improved working conditions, improved living conditions, urbanization, public health and life expectancy, wealth and income, etc). The importance of industrialisation to economic growth and development of any country cannot be overemphasized. Almost all developing and underdeveloped countries, Nigeria inclusive, strive towards industrialisation.

Trade liberalisation has been argued by several authors (e.g Shafaeddin, 2005) to be necessary for industrialisation if it is regarded as a part and parcel of dynamic and flexible trade industrial policies undertaken at the right time, gradually and selectively. Proponents of liberalisation argue that trade liberalisation will lead to industrialisation while those who oppose liberalisation argue that trade liberalisation could lead to de-industrialisation of the economy unless when certain measures are put in place before opening up. Shafaeddin (2005) argues that trade liberalisation is essential when an industry reaches a certain level of maturity, provided it is undertaken selectively and gradually. He maintains that, the way it is recommended under the Washington Consensus, it is more likely to lead to the destruction of the existing industries, particularly those that are in their infancy, without necessarily leading to the emergence of new ones. He further states that any new industry that emerges would be in line with static, rather

than dynamic, comparative advantage. The low-income countries, in particular, would be locked in the production and export of primary commodities, simple processing and at best assembly operations or other labour intensive ones with little prospect for upgrading.

According to Shafaeddin (2005), the process of trade liberalisation and market-oriented economic reforms that had started in many developing countries in the early 1980s intensified in the 1990s. The international financial institutions (IFIs) designed reform programmes which were referred to as the “Washington Consensus” since the early 1990s. Universal and uniform trade liberalisation was a part of that “Consensus”. “Universal” implies that all developing countries are to follow the same trade policy regime-trade liberalisation irrespective of their levels of development and industrial capacities. “Uniform” implies that all sectors and industries are to be subject to the same tariff rates preferably zero rate or low rate. Apart from trade liberalisation, such reform programmes included mainly: capital accounts liberalisation, devaluation at the early stages of reform to compensate for trade liberalisation, fiscal and financial reforms through contractionary macroeconomic policies such as budget cuts, increases in interest rates and privatization. The reforms undertaken varied in ownership and contents in different countries.

Trade liberalisation measures, in particular, are believed to be a reaction to the failure of traditional import substitution (MS) policies of the 1950s–1970s. The philosophy behind the reform programmes was that the role of government in making decisions on resource allocation should be minimized and the incentive structure should change in favour of exports through import liberalisation in order to follow an export promotion (EP) path instead of MS. It was argued that private agents, guided by the operation of market forces, would better achieve the objectives of growth and diversification of exports and output structure in favour of manufactured goods. Such objectives would, in turn, be attained through the expansion of investment, better channelling of resources and allocation of investment outlays to productive sectors. The change in the structure of incentives would not only lead to growth and diversification but also to the upgrading of the production structure facilitated by imported technology and improved skills enhanced by trade (Shafaeddin, 2005).

Nigeria is among the developing countries that engaged in trade liberalisation from the mid-1980s. In the quest to become a more reliant and industrialized economy, Nigeria has adopted several policies over the years towards opening it up to the industrialized world. The 1986 Structural Adjustment Programme (SAP) and successive reforms aimed at liberalizing the economy.

Available data reveals that, despite all these policies and efforts made, Nigeria is yet to achieve this objective of being an industrialized economy.

Table 1 shows how far Nigeria has gone towards achieving an industrial revolution. The MVA/GDP ratio which is used as an indicator of industrialization in the pre-industrialisation period (1980-1986), recorded a value of 9.7017 but this declined by 36.33% to a record of 6.1773 in the post-liberalisation period of 1987-1993. This further declined to 5.1591 and 3.146 in the periods 1994-2000 and 2001-2007 respectively. The MVA/GDP increased to 6.4571 in the period 2008-2014, and further increased to 10.5015 in the period 2015-2017, indicating an improvement in the industrial sector of the economy. A critical look at the data on manufactures as a percentage of merchandised exports and the manufacturing value added reveals that they follow the same trend except that the MVA in US\$ declined in the period 2015-2017.

Figure 1 also x-ray’s the trends in MVA percentage of GDP for the period 1980-2017. The graph reveals that despite the liberalisation policies put in place, the manufacturing sector is yet to make a substantial, sustainable contribution to the Nigerian economy. The graph also reveals that the MVA percentage of GDP recorded continuous improvement from 2009 to 2016.

The question then is whether this improvement is as a result of trade liberalization, in other words, whether trade liberalization has led to industrialization or de-industrialisation of the Nigerian economy.

Table 1.1: Economic Indicators in the Pre and Post-Liberalisation

Indicator	Pre-Liberalisation			Post-Liberalisation		
	1980-1986	1987-1993	1994-2000	2001-2007	2008-2014	2015-2017
Manufacture s Exports % of Merchandised Export	0.0742	0.3658	1.2484	2.8093	4.4282	4.5373
Manufacturing value added % of GDP	9.7017	6.1773	5.1591	3.1460	6.4571	10.5015
Manufacturing value added (US\$)	3,551,146,047	1,452,399,160	1,575,961,400	2,801,841,693	28,337,969,555	5,524,858,641

Source: World Development Indicators, 2016

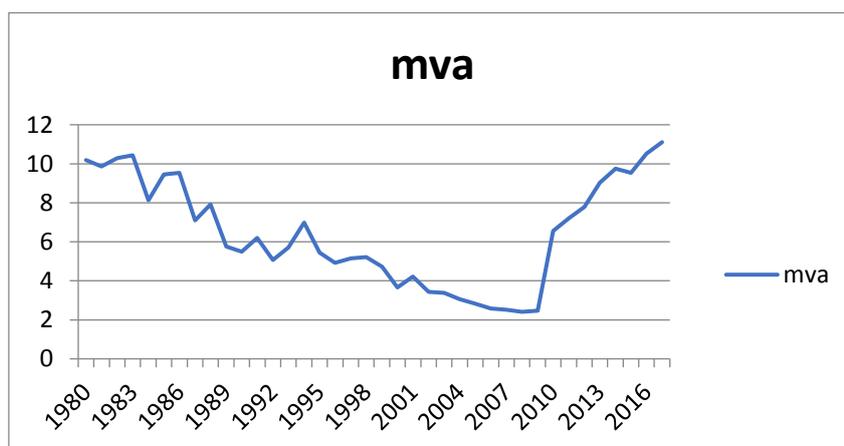


Fig 1.1: Manufacturing Value Added as a % of GDP, 1980-2017 (WDI, 2016)

This research is therefore aimed at establishing the relationship between trade liberalisation and industrial revolution in Nigeria. The key objective of this study is to find out if trade liberalisation has led to industrialisation or de-industrialisation of Nigeria's economy.

2. Conceptual Issues:

Trade Liberalisation:

Trade liberalisation has been defined in several ways by several authors. According to the Oxford dictionary of Economics, trade liberalisation is the process of reducing or removing restrictions on international trade. This may include the reduction or removal of "tariffs, abolition of "multiple exchange rates, and removal of requirements for administrative permits for imports or allocations of foreign exchange, or at least simplifying the process of applying for them. Investopedia, the online dictionary, defines trade liberalisation as the removal or reduction of restrictions or barriers on the free exchange of goods between nations. It includes the removal of or reduction of tariff obstacles, such as duties, and surcharges, and non-tariff obstacles, such as licensing, rates, quotas and other requirements.

Economists often view the easing or eradication of these restrictions as promoting free trade. Proponents of trade liberalisation, claim that it lowers consumer costs, increases efficiency, and fosters economic growth, while critics of trade liberalisation claim that it can cost jobs and also might lead to importation of poor quality commodities.

Industrial Revolution:

This depicts an era during which there were fundamental reforms or changes in the economy, by way of transition to new industrial processes - from an agrarian economy to one dominated by industry, textile, transport, heavy metal/machine manufacture, other technological changes in the industrial sector of the economy- resulting to the mass production of manufactured goods.

Theoretical Issues:

Trade liberalisation has significant macroeconomic and distributional effects. Over the years economists have sought to explain how countries could gain from opening up their economies to external competition and specialization. As a result, a number of trade theories have evolved. The policy of trade liberalisation was earlier advocated by Adam Smith (1776) who posited that it is always safer to allow the economy to be propelled by an invisible hand, that is, the forces of competition motivated by industrial self-interest.

The theory of absolute advantage, which is attributed to Adam Smith, discusses the benefits a country can achieve by actively participating in the international division of labour. The theory advocates that a country that trades internationally should specialise in producing only those goods in which it has absolute advantage. The country can then export a portion of those goods and, import goods that its trading partners produce more cheaply. The theory stated that expansion of international trade is an important method of widening the market and of promoting the division of labor while trade restrictions limit the size of the market, diminish the scope of international specialization, and thus lowering domestic productivity.

The non-acceptability of this theory to some authors gave rise to the comparative advantage theory credited to David Ricardo (1817). The theory while supporting Smith's theory, propounded that countries can benefit from each other even though one has absolute advantage

over the other in the production of goods and services. The comparative advantage comes if each trading partner has a product that will bring better price in another country than it will at home. If each country specializes in producing the goods in which it has a comparative advantage, more goods are produced, and the wealth of both countries increases.

The so-called Heckscher-Ohlin theory explains the pattern of international trade as determined by the relative land, labour and capital endowments of countries: a country will tend to have a relative cost advantage when producing goods that maximize the use of its relatively abundant factors of production (thus countries with cheap labour are best suited to export products that require significant amounts of labour). This theory subsumes Ricardo's law of comparative costs but goes beyond it in linking the pattern of trade to the economic structure of trading nations. It implies that foreign trade is a substitute for international movements of labour and capital, which raises the intriguing question of whether foreign trade may work to equalize the prices of all factors of production in all trading countries. Whatever the answer, the Heckscher-Ohlin theory provides a model for analyzing the effects of a change in trade on the industrial structures of economies and, in particular, on the distribution of income between factors of production.

The Heckscher-Ohlin Trade Theory - consists of four principal theorems that have made contributions in the theory of trade openness, viz; The Heckscher-Ohlin trade theorem which is the basic theoretical foundation of trade liberalization, whereby the relatively capital-abundant countries export relatively capital-intensive commodities. The Stolper-Samuelson theorem whereby an increase in the price of the relatively labour-intensive commodity unambiguously improves the real wage rate. The Factor-Price equalization theorem whereby trade in goods may serve to equalize wage rates between countries. The Rybczynski theorem which states that an increase in capital endowment, by itself, must cause some output to fall if prices are held constant.

According to the classical theory of international trade, "free trade is the best policy" and it leads to the optimization of the world's resources through the international division of labour. Indeed, these theories long viewed international trade as the engine of economic growth and hence, as an engine of mutual economic gain among countries.

3. Literature Review:

Several views have emanated from the study of the effect of trade liberalisation on industrial revolution/Industrialisation. Some authors argue that trade liberalisation could lead to industrialization while some argue that this is possible only when some conditions are met before opening up. For example; Nkosi (2016) argues that international trade should not be an engine of growth but that the engine of growth should be technological change with international trade serving as lubricating oil and not as fuel. Sanieipour (2015) postulates that, through offering developing nations an opportunity to engage in a buyer and producer-driven commodity chain, trade liberalization can fundamentally accelerate the industrialization process when the right policies are in play. An economist, Sir Arthur Lewis, also, in a series of seminal lectures on "the evolution of the international trade order" in which he explained the positive implications for trade once industrialization takes shape, concludes that "international trade cannot be a substitute for technological change, so those who depend on it as their major hope are doomed to frustration."

Empirical Literature:

Empirical research results are filled with controversies since they are yet to arrive at the same conclusion. This may be due to different sets of theoretical alternatives or methods of analysis or even choice of variables. Some studies find no significant relationship between trade liberalization and manufacturing sector growth. For example, Dutta and Ahmed (2000), using the framework of an endogenous growth model, empirically analyzed the relationship between trade policies and industrial growth in Pakistan. The empirical results showed that there exists a unique long-run relationship among the aggregate growth functions of industrial value added and its major determinants of the real capital stock, the labour force, real exports, the import tariff collection rate and the school enrolment ratio. The revival of the endogenous growth theory has established a theoretical framework which motivates the empirical study of trade liberalisation and economic growth. The trade liberalisation policy, proxied by an index of openness, has an insignificant effect on the growth in the manufacturing sector.

On the other hand, some studies find little empirical evidence to support a link between trade liberalisation and industrial growth (Lucas 1988). For instance, in Adenikinju and Chete (1995), it was shown that in the Nigerian manufacturing sector, import liberalisation has had a negative impact on total factor productivity growth. The reason for this was adduced to the fact that domestic manufactures are unable to compete with better quality (and often) imported products. Several authors have also pointed to the example of Korea and Japan where some form of protections are allowed for rapid transformation of the industrial sector (Pack and Westphal 1986).

Other authors found a positive relationship between trade liberalization and industrialization. Udegbunam (2002) examined the implications of trade openness for industrial growth in Nigeria using data for the period 1970-1997 and the study found that trade openness and stock market development are among the key determinants of industrial output growth in Nigeria.

In studying trade liberalisation and industrial performance in Nigeria, Adebisi (2006) employed the model developed by Lucas (1988) to explore the short-run dynamics around the variables, namely: index of industrial production lagged one period, the degree of openness (trade liberalisation), trade liberalisation dummy and real export which appear as significant determinants of the index of industrial production. The findings showed that there is no unique cointegral relation between the index of industrial production and its major determinants. However, the results of the error correction model (ECM) revealed that the index of industrial production lagged one period, the degree of openness (trade liberalisation), trade liberalisation dummy variable and real exports emerged as significant determinants of the index of industrial production in Nigeria. Bakare and Fawehinmi (2011) examined the implications of trade openness for industrial performance in Nigeria and found that the formal trade openness has a sustainable impact on the non-oil industrial sector of the Nigerian economy and suggested that more progress could be achieved if the conditions for deregulated trade system are properly put in place. Umoru and Eborieme (2013) investigated the relationship between trade liberalization and industrial growth in Nigeria using an ECM and found a positive significant correlation between trade liberalization and industrial growth in Nigeria. Edeme and Karimo (2014) examined the impact of economic liberalization on industrial sector performance in Nigeria, with attention on manufacturing, mining and quarrying and power subsectors. Using an ordinary least squares (OLS) approach, they found that economic liberalization has impacted significantly on the performance of Nigerian industrial sector.

Nigeria's Experience in Trade Liberalisation:

The trade policy reforms that have been adopted by the Nigerian government over the years include the partial abolition of import licensing scheme, granting of special tax incentives and tax holidays to enable local industries build up adequate funds for expansion and to encourage firms invest in economically disadvantaged areas, reduction of corporate income tax rates and introduction of tax-free dividends for foreign persons and to encourage local research and development. Other reforms include the promulgation of the export incentives decree in which various incentives to enhance export promotion were stipulated; establishment of export credit guarantee and insurance scheme to assist Nigerian companies in competing effectively in the international market; government grant of 140 percent tax relief to firms in respect of research and development of raw materials; export stimulation loans [ESL] scheme to provide for foreign producers that require imported inputs essential to the production of export products; the opening of domiciliary accounts to keep firms' export earnings in foreign currencies; government institutional support through the establishment of the Industrial Development Coordinating Committee [IDCC], a data bank, Raw Material Research and Development Council [RMRDC], the Project Development Agency [PRODA], Federal Institute of Industrial Research [FIIR], Export Processing Zones [EPZs], the Nigerian Investment Promotion Council; simplification of industrial licensing; deregulation of the foreign exchange markets and devaluation of the naira.

The earliest form of liberalizing trade prior to the Structural Adjustment Programme (SAP) was the import substitution policies in the 1970s. This policy did not record much success as a result of an uncondusive macroeconomic environment. The Adoption of SAP in 1986 however brought about the emergence of trade liberalization which was accompanied by the elimination of foreign exchange controls to reflect economic realities, removal of price controls and disbandment of commodity boards. The policy thrust of SAP in Nigeria was to create an environment conducive enough to enhance increased capital inflows, transfers, adoption of appropriate technologies and increase the share of trade revenue to government as another means of reducing the total reliance of the economy on crude oil revenues.

4. The Theoretical Framework and Empirical Model:

The theory of endogenous growth links trade openness with innovation and growth. The study adopted the endogenous growth framework of Lucas (1988) where output is generated through a production function of the form:

$$MVA = \beta_0 + \beta_1 GFC + \beta_2 HC + \beta_3 LAB \quad 1$$

Where

MVA = Manufacturing Value Added percentage of GDP - Indicator for degree of industrialization

GFC = Capital Stock (Domestic Investment)

LAB = Labour Force

HC = Human capital proxied by total school enrolment

The study, following existing literature, extended the Lucas framework to factor in the relationship between trade liberalization and industrialization. Using the Lucas framework as a benchmark, a simple reduced form of relationship, which links industrialisation, trade liberalization, and a vector of other control variables, namely gross capital formation, human capital, trade openness, labour force and foreign direct investment, was specified.

The equation is thus specified econometrically to investigate the impact of trade openness and other control variables on industrialisation;

$$MVA = \beta_0 + \beta_1 GFC + \beta_2 HC + \beta_3 LAB + \beta_4 FDI + \beta_5 TOP + E_t$$

Where FDI= Foreign Direct Investment

TOP= Trade Openness = $\frac{Imports+Exports}{GDP}$

E_t = Error term

To investigate the effect of liberalization, we included the liberalization dummy (1980-1986=0, 1986-2017=1) in the model and it was thus specified:

$$MVA = \beta_0 + \beta_1 HC + \beta_2 LIB + \beta_3 TOP + E_t \quad 3$$

Where

LIB = Liberalisation dummy.

We further performed an interaction of trade liberalization policies and trade openness to investigate the effect on manufacturing value added and thus the model are specified as:

$$MVA = \beta_0 + \beta_1 HC + \beta_2 LIB + \beta_3 TOP + \beta_4 LIB*TOP + E_t \quad 4$$

Where

$LIB*TOP$ = interaction of liberalisation policies and trade openness.

Data/Estimation Technique:

Time series data for analysis is culled from World Development Indicators data set for 2016 and Central Bank of Nigeria (CBN) statistical bulletin for several years. The study covered the period of 37 years (1980-2017). A 5-year moving average was used to take care of the periods where data was missing.

Unit Root Tests:

Before estimation, each variable (or item) in the series was tested for the presence of unit root in order to determine the stationary level of each variable and avoid spurious results. To achieve this, we used Perron (1989) and Vogelsang and Perron (1998) break point unit root test. This test was preferred because structural break and unit roots are closely related, such that conventional unit root tests (such as ADF, PP, KPSS) are biased toward a false unit root null when the data are trend stationary with a structural break.

Co-integration Test:

The Auto-regressive Distributed Lag (ARDL) bound testing approach was employed to test the co-integration relationship between the variables in the model. This helped us determine if there exists a long-run relationship among the variables.

Long-run and Short-run Estimates:

The ARDL model, apart from solving endogeneity problems, also estimates the long-run and short-run parameters of the model simultaneously.

5. Data Analysis and Results Presentation:

We begin the data analysis by first investigating the time series properties of each of the variables used. This was necessary to ensure that the problem of spurious regression was avoided and thus ensure that meaningful and reliable estimates were obtained. The study made use of Perron (1989) and Vogelsang and Perron (1998) break point unit root test. The results of this test were summarised in Table 5.1.

Table 5.1: Summary of Perron (1989) and Vogelsang and Perron (1998) breakpoint unit root test

Series	Break date	t-Statistic@ level	t-Statistic@ difference	Remark
LMVA	2010	-1.968902	-10.21409 **	1(1)
LGFC	2012	0.01309	-5.324315 **	1(1)
LFDI	2001	-4.862825**		1(0)
LTOP	2010	-2.259541	-8.177804 **	1(1)
LLAB	2010	-6.154729**		1(0)
LHC	2007	-2.598139	-4.245746*	1(1)

Critical values are; -4.949133, -4.443649, and -4.193627 at 1%, 5% and 10% respectively.

**and **Means stationary at 10% and 5% respectively*

Source- Authors' computation using E-Views 10

The results of the unit root test in table 5.1 suggest that all the variables were integrated of 1(0) and 1(1) at 5% level of significance except human capital that was significant at 1(1) but at 10% significance level. The test indicates the most probable break-points in the data.

ARDL Bounds Test Result:

The ARDL Bound testing approach proposed by Pesaran and Shin (1999) and Pesaran et al (2001) was appropriate since the variables' stationary levels were a mixture of 1(0) and 1(1).

The result of the cointegration test presented in table 5.2 indicates that the null hypothesis of no long-run relationship could not be accepted. This is because, the F-statistic value of 4.996668 exceeded the upper bounds critical value of 3.79 at 5% significance level. This means that all the variables are cointegrated and there is a long-run relationship between MVA and the independent variables.

Table 5.2 Cointegration test

ARDL Bounds Test

Sample: 1984 2017

Included observations: 34

Null Hypothesis: No long-run relationships exist

Test Statistic	Value	K
F-statistic	4.996668	5

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

Source: Author’s computation using E-Views 10

Long-run estimates:

The long-run estimate is a static model estimated to assess the impact of trade openness on industrialization (MVA) in Nigeria for the period 1980-2017 without incorporating the effect of trade liberalization policies.

Table 5.3 Long-Run Coefficients

Variable	Coefficien			
	t	Std. Error	t-Statistic	Prob.
LGFC	-0.628102	0.437609	-1.435306	0.2012
LFDI	0.004761	0.135734	0.035078	0.9732
LTOP	-1.952791	0.525844	-3.713628	*0.0099
LLAB	6.874169	3.804065	1.807059	0.1208
LHC	-1.811286	0.612897	-2.955286	*0.0254
	-			
C	39.316355	35.231824	-1.115933	0.3071

Source: Authors’ computation using E-Views 10

*Means statistically significant at 5% level

The long-run estimate of the model presented in table 5.3 reveals that trade openness and human capital have statistically significant but negative impact on manufacturing value added. The Labour force and foreign direct investments have a positive but statistically insignificant impact on MVA. On the other hand, domestic investments proxied by GFC has negative but statistically insignificant effect on MVA.

Short-run estimates:**Table 5.4: short-run estimates**

ARDL Cointegrating And Long-Run Forms

Dependent Variable: LMVA

Selected Model: ARDL(4, 3, 4, 4, 4, 3)

Date: 06/16/18 Time: 21:36

Sample: 1980 2017

Included observations: 34

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LMVA(-1))	0.473707	0.353392	1.340457	0.2286
D(LMVA(-2))	0.882501	0.376641	2.343084	**0.0576
D(LMVA(-3))	0.352617	0.287597	1.226084	0.2661
D(LGFC)	0.027848	0.252076	0.110475	0.9156
D(LGFC(-1))	0.420149	0.200125	2.099438	**0.0805
D(LGFC(-2))	0.627937	0.256784	2.445386	*0.0501
D(LFDI)	-0.064007	0.100629	-0.636076	0.5482
D(LFDI(-1))	0.093293	0.106342	0.877289	0.4141
D(LFDI(-2))	0.033493	0.098399	0.340379	0.7452
D(LFDI(-3))	-0.155395	0.101745	-1.527297	0.1775
D(LTOP)	-1.162459	0.325078	-3.575933	*0.0117
D(LTOP(-1))	0.193444	0.236588	0.817640	0.4448
D(LTOP(-2))	0.641443	0.249402	2.571920	*0.0422
D(LTOP(-3))	0.467059	0.257693	1.812466	0.1199
	-			
D(LLAB)	102.234941	38.027122	-2.688474	*0.0361
	-			
	1687.35261			
D(LLAB(-1))	4	547.885955	-3.079752	*0.0217
D(LLAB(-2))	714.506026	268.865219	2.657488	*0.0377
D(LLAB(-3))	-0.269195	0.165687	-1.624720	0.1553
D(LHC)	-0.590879	0.671574	-0.879843	0.4128
D(LHC(-1))	-0.750820	0.798062	-0.940803	0.3831
D(LHC(-2))	2.957361	0.853792	3.463795	*0.0134
CointEq(-1)	-1.557244	0.459831	-3.386555	*0.0147

Cointeg = LMVA - (-0.6281*LGFC + 0.0048*LFDI -1.9528*LTOP + 6.8742

*LLAB -1.8113*LHC -39.3164)

Source: Authors' computation using E-Views 10

The short-run results represented in table 5.4 reveal that MVA (indicator for industrialisation) when lagged by 2 periods (lag 2), has a positive and significant effect on MVA. Also, trade openness in the current period impacts negatively on industrialisation. But when lagged by 2 periods, the trade openness impacts positively on industrialisation at 5% significance level respectively. This means that a 10% increase in trade openness in the current year will significantly reduce industrialization by 11.63 units while the same change in the second period (lag2) will increase industrialisation by 6.41 units. The human capital, which is a very vital

determinant of industrialisation, when lagged by 2 periods, impacts positively on industrialization; a 10% increase in human capital will improve industrialization by 25.57 units.

Dummy Variable Regression Results:

In equation 3, we introduced the dummy variable to see the effect of liberalization policies on the performance of the manufacturing sector which is the determining factor of industrial revolution. The result was presented in table 5.5

Table 5.5: OLS estimation for dummy

Dependent Variable: LMVA

Method: Least Squares

Date: 06/16/18 Time: 21:40

Sample: 1980 2017

Included observations: 38

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LHC	-0.200541	0.108981	-1.840144	**0.0745
LIB	-0.076084	0.185575	-0.409992	0.6844
LTOP	-0.976102	0.161615	-6.039663	*0.0000
C	4.160930	1.519053	2.739160	0.0097
R-squared	0.638424	Mean dependent var		1.764135
Adjusted R-squared	0.606520	S.D. dependent var		0.478143
S.E. of regression	0.299930	Akaike info criterion		0.528764
Sum squared resid.	3.058567	Schwarz criterion		0.701141
Log likelihood	-6.046513	Hannan-Quinn criter.		0.590094
F-statistic	20.01091	Durbin-Watson stat		2.354803
Prob(F-statistic)	0.000000			

Source: Authors’ computation using E-Views 10

*and ** denotes significant at 1% and 10%

The result in table 5.5 reveals that, for the period under review, liberalisation policy of 1986 in Nigeria had negative but insignificant impact on industrialisation; also trade openness and human capital impacted negatively but significantly on industrialisation.

In equation 4, we introduced the interaction of trade openness and liberalisation policies into the model. This was to help us to see if industrial revolution would be better achieved if liberalisation policies are accompanied by trade openness.

The result presented in table 5.6 reveals that liberalisation policies (Lib) had significant but negative impact on industrialization; an increase in liberalization policies by 10% will reduce industrialization by 11.9 units; trade openness had negative but insignificant effect on industrialization, but interaction of the two variables: liberalization policies and trade openness gave a positive and significant effect on industrialization.

The F* was high and significant showing the overall fitness of the model.

Table 5.6: Interaction

Dependent Variable: LMVA
 Method: Least Squares
 Date: 06/16/18 Time: 21:42
 Sample: 1980 2017
 Included observations: 38

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LHC	-0.184016	0.101307	-1.816407	0.0784
LIB	-1.186123	0.467963	-2.534652	*0.0162
LTOP	-0.030107	0.400000	-0.075267	0.9405
LIB*LTOP	1.042369	0.408618	2.550959	*0.0156
C	4.946788	1.442482	3.429359	0.0016
R-squared	0.697980	Mean dependent var		1.764135
Adjusted R-squared	0.661372	S.D. dependent var		0.478143
S.E. of regression	0.278240	Akaike info criterion		0.401415
Sum squared resid	2.554781	Schwarz criterion		0.616887
Log likelihood	-2.626888	Hannan-Quinn criter.		0.478078
F-statistic	19.06609	Durbin-Watson stat		2.133911
Prob(F-statistic)	0.000000			

Source: Authors’ computation using E-Views 10

*denotes significant at 5% significance level

6. Discussion of Findings and Conclusion:

From the results presented in section 5, we concentrated on the long-run results (Table 5.3), and then compared this result with the dummy regression result (table 5.5) and the interaction result (table 5.6). The summary was presented in table 5.7

Table 5.7: Summary of Findings

Variable	Long-run result		Dummy result	regression	Interaction result	
	Co-efficient	Probability	Co-efficient	Probability	Co-efficient	Probability
LTOP	-1.95279	0.0099**	-0.976102	0.0000*	-0.130107	0.9405
LHC	-1.811286	0.0254**	-0.20054	0.0745***	-0.18406	0.0784***
Lib			-0.076084	0.6844	-1.186123	0.0162**
Lib*LTOP					1.042369	0.0156**

Source: Authors’ compilation from results

*, **and *** denotes statistically significant at 1%, 5% and 1% respectively

The summary presented in table 5.7 reveals that liberalisation policies could improve the economic performance of Nigeria but that its impact will be higher when it is accompanied by dynamic and flexible trade policies. The long-run result shows that trade openness and human capital impacted negatively on manufacturing value added. The introduction of the policy variable into the model reduced the negative impacts of these variables and this was further reduced when the liberalization and trade openness variables were interacted and introduced in

the model. Also, trade openness and liberalization variables, on their own, had negative impact on manufacturing value added, but their interaction gave rise to a positive and significant effect on manufacturing value added.

This result has actually proved what some authors (example, Shafaeddin, 2005) said, that trade liberalisation is necessary for industrialization if it is regarded as a part and parcel of dynamic and flexible trade policies undertaken at the right time, gradually and selectively.

In conclusion, we submitted that trade liberalization caused de-industrialisation and not industrialization in Nigeria over the period of study (1980-2017). Whereas a number of factors, including structural weaknesses, might have contributed to de-industrialisation, the influence of premature liberalisation cannot be denied (Shafaeddin, 2006c & 2009). During the last two to three decades, quantitative trade restrictions have been eliminated and tariff rates have been reduced drastically. In particular, tariffs on imports of manufactures have been reduced significantly ranging from 33.5 per cent to 83.2 per cent (Shafaeddin, 2009, Table 14).

Recommendations:

Having seen that trade liberalisation can lead to industrialisation in Nigeria when accompanied by dynamic and flexible policies, Nigeria should be cautious in liberalising and ensure that liberalisation is accompanied by trade policies like policies that boost the economy's export and support diversification in order to tap all the benefits from trade liberalization since according to Sanieipour (2015), through offering developing nations an opportunity to engage in a buyer and producer-driven commodity chain, trade liberalization can fundamentally accelerate the industrialization process when the right policies are in place.

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