TRADE LIBERALIZATION AND MANUFACTURING SECTOR PERFORMANCE: Evidence from the Economic Community of West African States

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ABSTRACT

The relationship between trade liberalization and industrial sector performance is ambiguous from both the theoretical and empirical points of view. More so, studies have linked trade liberalization with economic growth and sectoral performance; yet, efforts to situate findings on industrial activity within trade blocs especially in Africa are scarce in the literature. This is particularly important, as the African Union has taken a major step to boost regional trade and economic integration by establishing the African Continental Free Trade Area (AfCFTA). In this paper, the effect of trade liberalization on manufacturing value added for countries in the ECOWAS using data from the World Development Indicators (2019) and the CEPII data base was examined. Findings are shown for the period of the ECOWAS treaty, 1975 to 2019 and the non ECOWAS and ECOWAS period 1960 to 2019. Estimates were provided using the fixed (controlling for country and time effects) and random effects models. Findings showed that trade liberalization measured by openness and export taxes led to improvement in manufacturing value added. Interestingly, increase in import tariff rate as a measure of trade liberalization had unexpected positive effect on manufacturing value added. Additional findings noted were associated improvements in manufacturing sector performance with population increase and fall in the real exchange rate. No significant differences were found in the result for both periods considered in the study. Empirical

findings of the study support theoretical propositions that trade liberalization can lead to improved industrial sector performance with specific reference to the African region. The evidence lends support to the potential of AfCFTA in promoting industrial sector performance and sustainable development in Africa.

Keywords: Trade liberalization, Industrial sector, Manufacturing value added, ECOWAS

JEL classification: F14. F15, F41

1. Introduction

The role of industrialization in fostering economic growth and development cannot be overemphasized. Of key note is that industrialization promotes structural transformation as economies make advancements on the path to development, and improvements in living standard and poverty reduction (UNECA 2014). While industrialization in most developing regions of the world has begun to plateau, the availability of low-cost labour, abundance of natural resources and raw materials in Africa signals great potential for industrialization (Signé and Johnson, 2018).

The industrial potential in Africa can be tapped using trade policies, particularly those that encourage liberalization (UNECA, 2014; IMF, 2016). This is because trade enhances production efficiency, competition, innovation, and specialization and provides an avenue for international technology transfer (IMF 2016; Mazumder, 2008). While most studies have linked trade liberalization with economic growth and sectoral performance, efforts to situate findings within trade blocs, especially in Africa, are scarce in the literature (Shafaeddin, 2005; Umoh and Effiong, 2013; Ahmed, Arshad Khan & Afzal, 2015; Ojeyinka and Abiodun, 2017; Silajdzic and Meh, 2018; Shobande, 2019). This is important given that more liberalized trade policies are observed within a trade bloc, and for African economies, such finding is vital based on conventional arguments of deindustrialization that accompany trade between developing and developed nations (Shafaeddin, 2005; Siddiqui, 2015). The interest therefore is whether trade bloc operations with countries of similar level of development promote industrial sector performance. Results in this case are not common, especially for ECOWAS where trade-

oriented policies are practiced. This again is essential with suggestions that regional trade agreements in ECOWAS promotes trade among member countries and hence creates opportunity for industrialization and increase in output (Mattoo 2006; Briggs and Sheehan, 2019; Osabuohien et al., 2019). In addition, member countries of the African Union took a major step to boost regional trade and economic integration by establishing the African Continental Free Trade Area (AfCFTA) in 2018 (UN, 2019). The policy was expected to begin operation in 2020. The potential effect of AfCFTA can be linked to findings for existing trade blocs such as the Economic Community for West African States (ECOWAS).

The effect of trade liberalization on macroeconomic variables is often determined using openness, and the ratio of the sum of exports and imports to GDP as a key measure (Mattoo, 2006; Majeed, Ahmed & Butt, 2010; Sheikh and Ahmed, 2011; Amjad et al., 2012; Umoh and Effiong, 2013; Silajdzic and Meh, 2018). There are however several measures that capture trade liberalization and can be used alongside trade openness to provide more comprehensive results on how trade policy influences economic outcome. Some of these measures identified in the literature include the import tariff rate, export taxes, the share of imports in GDP, the share of exports in GDP, changes in trade shares, openness index[8] and non-tariff barriers such as import quotas (Das, 2002; Ramesh, 2014; Ahmed, Arshad Khan & Afzal, 2015; Zahonogo, 2017; Silajdzic and Meh, 2018). Studies that have explored the use of more measures of trade liberalization provide more comprehensive evidence on the role of trade liberalization in economic outcome.

This study mainly examined the role of trade liberalization in manufacturing sector performance in Africa using panel data from member countries of ECOWAS. Manufacturing sector performance is measured using the value of manufacturing value added. The focus on manufacturing follows from the role it plays as a major source of employment generation, in addition to serving as a precondition for Africa to achieve inclusive economic growth by boosting intra-African trade and industrialization. Aside the conventional

[8] There are several forms of openness index in the literature. Das (2002) provides a comprehensive listing of such index.

measure of using openness as a measure of trade liberalization, this study experimented with import duties and taxes on exports as alternative measures (Dutta and Ahmed, 2006; Ahmed, Arshad Khan & Afzal, 2015; Silajdzic and Meh, 2018). The choice of additional variables used for trade liberalization is based on the availability of data. Findings are shown for the period of the ECOWAS treaty, 1975 to 2019; and the non ECOWAS and ECOWAS period, 1960 to 2019. This is to provide further insight on how trade-oriented policy in the region has influenced industrial performance.[9] Based on the study objectives, the contribution of this paper to the literature is therefore in three ways. First is that, it provides empirical results regarding the role of trade liberalization in fostering industrialization in Africa specifically for ECOWAS, for which findings are uncommon. Secondly, findings are extended to more measures of trade liberalization to provide for a result that is more comprehensive. Thirdly, empirical findings are provided for the overall study period and after the implementation of trade policy by ECOWAS. Findings in this regard are scarce in the literature.

2. Literature Review

Theoretical postulations of classical economists such as Adam Smith stressed the importance of trade as an avenue for surplus production and a means of widening markets thereby improving division of labour and the level of productivity (Ojeyinka and Abiodun, 2017). In this light, international trade can serve as an avenue for enhancing welfare and achieving higher economic growth rates. The benefits of trade for developing economies are commonly seen in terms of creating a channel for production patterns that are skewed towards labour-intensive service, agriculture and manufacturing (Krugman, 1990).

Following the law of comparative advantage, benefits that accrue to countries imply that policies that favour trade induce static gains or savings by not producing imported goods for which the opportunity cost of domestic production is high. There are also dynamic benefits and in this case, trade

[9] Our interest was initially to examine manufacturing sector performance for the study period, prior to and after the introduction of ECOWAS, however, the challenge with insufficient observations prior to the ECOWAS treaty implementation cancelled the objective of determining manufacturing sector performance prior to the introduction of ECOWAS.

stimulates competition, the acquirement of new knowledge, ideas and production technology, and interestingly changes in attitudes and institutions. In the framework of the new growth theory, these benefits are seen as forms of externalities, which keep the marginal product of physical capital from falling, so that trade improves the long-run growth performance of countries (Baldwin, 1992; Nowak-Lehmann, 2000). Despite these benefits associated with trade, empirical findings do not provide unanimous results on the effect of trade on economic performance, especially for developing countries. The arguments for non-positive effect, often rests on the level of industrialization (Shafaeddin, 2005; Silajdzic and Meh, 2018). In this case, positive effects of trade liberalization on industrial sector performance are generally seen under two conditions. First, when industries in an economy have attained some level of maturity, and second, when the liberalization process is undertaken in a selective and gradual manner. Where these conditions are not fulfilled, trade, rather than lead to industrialization, will result in deindustrialization by not creating room for the emergence of new industries and will also promote the destruction of existing industries. The effect in this case is stronger for economies with industries that are in their infancy. Hence, countries with industries that are yet to attain maturity will be locked in the production and export of primary commodities (Shafaeddin, 2005).

Economies in this category are often low-income countries and they are more likely to experience improvements in agricultural production for export of primary products with low returns, as these products are not refined enough to attract considerable trade benefits in terms of financial returns. Thus, the benefits of trade accrue mainly to developed countries as industries in these economies have attained a reasonable level of maturity (Silajdzic and Meh 2018). In line with this position, Zahonogo (2017) showed that the growth effects of trade openness possibly differ based on the level of trade openness. Hence, developing countries, especially those in the sub-Saharan African region, must productively control trade openness, particularly the import of consumption goods, to boost economic growth.

A close examination of trade activities in developing countries shows that most goods are not traded due to the high transport cost and poor

infrastructure that characterize such economies, and this challenge often reduces the chances of benefiting from trade (UNECA, 2013). In this light, developing countries are disadvantaged in exploring the advantage of trade liberalization. With most industries in Africa yet to attain maturity, trade liberalization benefits are hampered in the region. Arguments to promote trade benefits are hence through the creation of regional trade agreements in the form of customs unions and free trade areas. The use of customs unions frees trade between members and imposes a common external tariff on imported goods from the rest of the world. In a free trade area, by contrast, barriers to trade are brought down within the area, but there is no common external tariff. Countries are free to impose their own specific tariffs on goods from outside the area, although often subject to agreement over the proportion of goods that must be purchased from within the area. (Thirlwall, 2000; UNECA, 2013). There are however arguments that the structural characteristics of African economies, the pursuit of import-substitution policies, and the very uneven distribution of costs and benefits of integration arising from economic differences among countries will prevent meaningful trade integration in the region (Forouton, 1993).

Interestingly, findings in the literature do not always support trade benefits for regional integration in developing economies, particularly in Africa. In terms of positive effects, evidence provided by Ghan (2009), for instance, showed weak evidence of trade liberalization inducing deficits on merchandise trade balance for a sample of developing countries for trade with developing countries; but the trade balance improved with industrial countries. The result in this case leans towards positive effects of trade liberalization on economic progress when developing countries engage in trade-oriented policies with developed nations. Findings by Osakwe, Santos-Paulino & Dogan (2018) also suggest the same conclusion with evidence showing that parameter estimations for trade intensity are associated with export diversification in developing countries and in SSA countries in the short term. Earlier evidence provided by Ghose (2000) suggests that growth in trade, which is often from liberalization, improved industrial sector performance in developing countries. In this case, liberalized trade policies induced a rise in employment elasticity in the manufacturing sector of developing countries. Thus, the growth of manufactured exports to

industrialized nations increased demand for both skilled and unskilled workers in manufacturing. Additional findings by Salinas and Aksoy (2006) also support the positive effects of trade liberalization in developing economies with evidence of induced acceleration in investment, and exports of goods and services, including manufacturing exports. Findings on the positive effect of trade-oriented policies were shown to improve exports, regardless of the level of income per capita. Interestingly, significant positive effects were also observed in sub-Saharan Africa.

Findings by Said and Elshennawy (2010) also confirmed the positive effect of trade liberalization with indications that the reduction in tariffs and increasing export orientation resulted in a rise in wages in manufacturing industries. The effects were however not uniform across the different quantiles of wage distribution. These evidence are contrary to common belief that outward orientation leads to deindustrialization.

On the contrary, empirical results provided by de Melo, Panagariya & Rodrik (1993) found no evidence that regional integration among developing countries exerted positive effect on income and growth, except in the case of the Southern African Customs Union (SACU) where favourable growth effects were found for Botswana, Lesotho, and Swaziland. Findings by Ojeyinka and Abiodun (2017) for Nigeria, the largest economy in Africa, also support the position of trade liberalization not promoting industrialization. Evidence in this case showed significant positive impact of trade liberalization on the output of the agricultural sector with negative significant effect on manufacturing output.

Evidence provided by some earlier studies also support findings that trade liberalization led to the deindustrialization of low-income countries, particularly in sub-Saharan Africa (Bennel, 1998; Shafaeddin, 1995; Noorbakhsh and Paloni, 2000; Thoborn, 2001). In line with these studies, the majority of countries in Africa and Latin America, most of them low-income countries, are shown to have faced deindustrialization due to operation of the open border policy. In these studies, trade liberalization induced slow growth of exports and deindustrialization and was accompanied by increased vulnerability of these economies, particularly the manufacturing sector, to

external factors based on reliance on imports (Shafaeddin, 2005). In addition, trade liberalization in developing countries is seen as an instrument that shrinks development space and undermines self-determination and the economic sovereignty of developing countries (Siddiqui, 2015).

Findings by Ramesh (2014) show that trade liberalization had unequal effect in developed and developing countries. That is, the impact of trade liberalization on economic growth differed across countries depending on the stage of economic development. The evidence in this case shows that lower-middle income countries, on average, benefitted at least 3% more compared to other developing countries from trade liberalization. Similar evidence provided by Were (2015), based on different categories of countries, revealed that whereas trade had positively impacted economic growth in developed and developing countries, its effect was insignificant for least-developed countries (LDCs), which largely include African countries. In line with these studies, findings for developed countries provided by Silajdzic and Meh (2018) show that trade integration promoted growth in member countries of the Central and Eastern European (CEE) economies through not only a rise in exports but also an increase in import volume. Other positions that do not favour regional trade operations generally argue that large international differences in production functions between countries serve as a major hindrance to harnessing benefits from trade liberalization. In addition, oftentimes, for trade between developed and developing countries, what is observed is that developed nations protect their markets from imports from developing countries, particularly agricultural produce and textiles, and with most industries in Africa yet to be at maturity, trade liberalization benefits the developed than developing nations (Goldar, 2002).

Given the literature evidence of unequal effects of trade on development, it is safe to conclude that regional trade will more likely promote industrialization and growth in developing economies, most of which are in Africa. However, the challenge in this case is whether there will be sufficient knowledge transfer and large enough markets to promote industrialization. Furthermore, for countries operating similar production functions particularly with low level of technology, concerns are raised for any noticeable effect of intra-regional trade on industrialization. In addition, given that countries in the region, particularly African nations, are faced with high transport costs

and infrastructural bottlenecks that will impede trade and access to markets, the effect of trade liberalization on industrialization becomes difficult to predict. The unclear effect of regional trade agreements on manufacturing sector performance informs the focus of this study.

3. Methodology

3.1 Empirical model specification

This study adopted the gravity model presented by Melitz (2003) and used recently by Bergstrand, Mario & Yoto (2014) and Shobande (2019) in examining the role of trade liberalization in industrial sector performance. In specifying the equation, two major variables explaining trade flow between trade partners are considered: economic strength of a country captured using gross domestic product (GDP) and geographical proximity measured using distance (Shobande, 2019). The orientation of the gravity model follows from Newton's universal law of gravitation, which proposes that the gravitational attraction between two objects is proportional to their masses and indirectly related to the square of their distance. The model is stated as follows:

$$GA_{ij=}\ C\ \frac{M_iM_j}{{D_{ij}}^2} \tag{1}$$

where:

GA_{ij} = the gravitational attraction between objects

M_iM_j = the mass of two objects

${D_{ij}}^2$ = the distance

and C = the gravitational constant

In applying the gravity model to analyse trade activities, equation (1) is modified following Krugman and Obstfeld (2003). In line with the definition of variables in the model to reflect trade activities as used by Krugman and Obstfeld (2003), the gravity model is re-specified as:

$$TF_{ij=}\ C\ \frac{GDP_iGDP_j}{D_{ij}{}^2} \tag{2}$$

where:

TF_{ij} represents the total trade flow from origin country i to destination country j, which in this study is measured using manufacturing value added[10] (proxy for industrialization). This is based on the position that trade flow is mainly from manufacturing in terms of industrialization.

GDP_iGDP_j is the economic size of two countries i and j, which are usually expressed as gross domestic product (GDP) or gross national product (GNP).

$D_{ij}{}^2$ is the distance in kilometres (KM) between the capitals of economies i and j. Use of the average value for distance in KM between a country i and other ECOWAS countries was made and C is the constant.

In this study, the gravity model is further modified to include additional controls using variables that are key influencers of trade activities between countries. In the gravity equation, besides the use of geographical distance, auxiliary variables that can proxy change in prices that occur in the process of trade between countries i and j are also used. Variables used in this case are either the real exchange rate or the price of oil. The exchange rate is often preferred based on its suitability for representing interaction among trading economies (Shobande, 2019). Other variables that are employed are those that are used to proxy the market size of each country, such as population size. Often, the higher the population, the bigger the market. In addition, the volume of trade is often associated with trade policies particularly those that promote economic and trade association between countries. Trade policies such as measures of trade liberalization are hence included in the model as they explain the extent of economic attraction between countries (Shobande, 2019). In this study, openness is used as a measure of trade liberalization based on its widespread use and also includes other measures such as import

[10] Several studies make use of industrial value added as a measure of industrial performance (see for instance Dutta and Ahmed, 2006). The variable definitions and proxies are similar to those applied by Shobande (2019).

tariff rate and export taxes[11] as control variables for more comprehensive findings (Ahmed, Arshad Khan & Afzal, 2015; Silajdzic and Meh, 2018).

Based on the modified gravity equation, the empirical model used in this study, in line with panel data model specification, is stated as:

$$Log\ MANF_{it} = \propto_1 + \propto_2 Log(GDPCAP)_{it} + \propto_3 DIST_{it} + \propto_4 REER_{it} + \propto_5 LogPOP_{it} + \propto_6 OPEN_{it} + + \propto_7 TARF_{it} + \propto_8 TEXP_{it} + \varepsilon_{it}, \quad (3)$$

where:

i = 1, 2. . . N denotes a cross-section index of countries, and

t = 1, 2, . . . , T denotes the time-series index.

$MANF$, the dependent variable, is manufacturing sector performance measured using the log of manufacturing value added.

$GDPCAP$ is per capita real Gross Domestic Product

$DIST$ is the average distance in KM between a country i and other member countries in the ECOWAS region,

$REER$ is the real effective exchange rate,

POP is total population,

$OPEN$ is Openness,

$TARF$ is tariff rate and

$TEXP$ is taxes on exports.

GDP is conventionally used as a measure of macroeconomic income and usually precedes development. With higher per capita GDP values in a country, residents will often demand more exotic foreign goods, especially where the goods are superior to those produced domestically, therefore increasing the level of imports. Higher income values thus ensure the effective demand of a firm's product in another country. The empirical signs in terms of the effect of per capita GDP on manufacturing sector performance are expected to be positive. Hence, it is expected that $\propto_2 > 0$. The effect of

[11] Some studies made use of Trade to GDP ratio as measures of liberalization especially in relation to economic growth (Razzaque et al. 2003).

distance on trade measured is expected to be negative as longer distance implies higher transport costs and hence acts as a disincentive to trade. Thus, the expected is that $\propto_3 < 0$. Given that higher prices for international exchange is a disincentive to trade, we expect the parameter for the real effective exchange rate, $\propto_4 < 0$. Population is a major determinant of the size of the market of each country, hence it is expected that an increase in population size will promote more trade deals. As such, $\propto_5 > 0$. In terms of trade liberalization, it is well documented that liberal trade policies promote industrial development through the diffusion of knowledge, learning by doing, provision of advanced technology, innovation of new products and improvement in quality of products, which enhances access to foreign markets. It can also increase industrial efficiency by eliminating monopoly profits, increasing capacity utilization and allowing optimal resource allocation (Sheikh and Ahmed, 2011; Bergstrand, Mario & Yoto, 2014; Ahmed, Arshad Khan & Afzal, 2015; Kabir, Rahul & Nasser, 2017; Silajdzic and Meh, 2018). Hence, more open economies, less use of import tariffs and reduction in export taxes will promote trade and improve manufacturing sector performance. As such, we expect $\propto_6 > 0$, $\propto_7 < 0$, and $\propto_8 < 0$.

3.2 Estimation technique

In line with most panel data studies, this research made use of the fixed and random effects model to analyse data. This is to ensure control for unobserved heterogeneity that is common in panel data studies. The choice of the model that best suits the data was determined with the use of Hausman test statistics (Green, 2003). For the fixed effects model, the two-way fixed effects approach was adopted to control for country- and time-fixed effects. Focus on country-specific fixed effects gives room to absorb time-invariant country-specific characteristics such as institutional structures that often affect the production capacity of a country, and hence the level of manufacturing exports and value added (Beecroft et al., 2020). The research controlled for time-fixed effects to accommodate for time-specific developments that may influence industrial activities and hence manufacturing sector performance. Such variables include internal or sometimes ethnic crises that pervade most African countries (Falvey, Foster-McGregor & Greenaway, 2012). The use of country- and time-fixed effects

account for endogeneity from potentially omitted variables and measurement error in the analysis (Jetter, Laudage & Stadelmann, 2019).

In the fixed effects model, it is assumed that the time invariant unit and time specific effect are correlated with the time variant explanatory variables. Hence, to get unbiased estimates, the time invariant unit and time-specific variables were captured in a fixed-effects model. The random effects model assumes that the time-invariant unit specific effect and the time-specific effect are uncorrelated with the time variant explanatory variables, and hence estimates are provided without controlling for unit and time-specific effects (Bollen and Brand, 2008). The Hausman test statistics were used to determine the suitability of the fixed and random effects model for analysing the data. However, estimates for both models are presented for more robust discussion of the results. As earlier stated, the results are shown for the period after the introduction of ECOWAS until date, and the period covering before and after the ECOWAS agreement, to further provide insights into manufacturing sector performance in relation to trade liberalization in the region.

3.3 Data and measurement of variables

Data for the study were obtained from the World Development Indicators provided by the World Bank (2019) and the CEPII database.[12] The study covered the period 1960 to 2018. The ECOWAS treaty came into existence in 1975; hence, the choice of the selected period enables the examination of the objective after ECOWAS was introduced, and the periods before and after it was introduced. The study covered the 15 member countries that make up ECOWAS: Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo. The description, source, and measurement of the variables used in the study are shown in the table below.

[12] The geo_cepii.xls file provides data on 225 countries and their main city or agglomeration. See Mayer and Zignago (2006).

Table 1. Variable Description, Source and Measurement

S/N	Symbol of Variable	Description	Source	Measurement
1.	$MANF$	Manufacturing value added	WDI	Constant 2010 US$
2.	$GDPCAP$	GDP per capita	WDI	Constant 2010 US$
3.	$DIST$	Average distance between ECOWAS countries	CEPII	Kilometre
4.	$REER$	Real effective exchange rate	WDI	Index (2010 = 100)
5.	POP	Population	WDI	Total
6.	$OPENS$	Ratio of the sum of Imports of goods and services (constant 2010 US$) and Exports of goods and services (constant 2010 US$) to GDP (constant 2010 US$)	WDI	Ratio
7.	$TARF$	Tariff rate applied	WDI	Simple mean manufactured products (%)
8.	$TEXP$	Taxes on exports	WDI	% of tax revenue

4. Results and Discussion of Findings

Presented in this section are the findings of this study, beginning with the descriptive statistics of variables. The results for the descriptive statistics of the variables used are shown for the periods 1975 to 2019 and 1960 to 2019 in tables 2a and 2b respectively.

The results in table 2a show that average manufacturing value added in the ECOWAS region for the period 1975 to 2019 was about 3.25 billion US dollars (USD). The standard deviation for manufacturing value added was quite high at about 8.51 billion USD, but this could be associated with the heterogeneous nature of the country cross sections. The minimum value of manufacturing value added was negative. A manufacturing firm could incur negative value added due to high initial working costs and/or low introductory prices. Negative value added could also occur where there are adverse changes in the terms of trade, leading to a relatively large increase in the price of inputs relative to the price of outputs. Another possible cause could be when there are changes in the technical structure of production. In this case, the manufacturing firm could be mandated by legislation not to make use of an anti-pollution input that is cheaper, but to rather introduce

safer inputs that are more expensive. It could also be due to differences in the evaluation of value added when goods are transferred from one part of the manufacturing firm to another for subsequent processing (Silver and Golder, 1981; UNIDO, 2020).

Table 2a. Descriptive Statistics 1975 to 2019

S/N	Symbol of Variable	Mean	SD	Min	Max
1.	$MANF$	3.25E+09	8.51E+09	-13.36742	4.45E+10
2.	$GDPCAP$	753.7787	589.851	.0409252	3,759.553
3.	$DIST$	1225.076	196.0067	1018.249	1822.496
4.	$REER$	2.756,452	6,268,494	50.16822	2.51E+07
5.	POP	1.39E+07	3.01E+07	2.085445	1.96E+08
6.	$OPENS$	0.6458489	0.3432035	-3.16E-12	2.138765
7.	$TARF$	13.79441	5.843022	3.4	86.48
8.	$TEXP$	6.518713	9.304953	0.0001274	51.67701

Source: Author's computation from WDI World Bank (2019) and CEPII database.

Real GDP per capita in the ECOWAS region for the period 1975 to 2019 was approximately 754 USD and showed high standard deviation values of about 590 USD. Average distance between countries in the ECOWAS region was approximately 1,225 kilometres. Closer countries had a minimum distance of about 1,018 kilometres. Those that were not in close proximity with other countries had a maximum distance of approximately 1,823 kilometres between them. Average value for real effective exchange rate was approximately 2.7 million. The maximum value was as high as 25.1 million. On the average, the total population in the ECOWAS region for the period 1975 to 2019 was about 13.9 million. This was approximately 1.16% of the African population in 2017[13] (UN, 2018). The African region is known to be the major driver of world population growth and hence has a large market for trading activities (UNCTAD, 2017). On the average, openness measure was

[13] This is based on the statistics from the United Nations (2018). The figures showed that the population of Africa in 2017 was 1.2 billion.

about 0.65, showing higher income values relative to the sum of imports and exports. Average tariff rate applied on manufacturing was approximately 13.79% with a maximum value of 86.48%. Taxes on exports were about 6.52% of tax revenue with a maximum value of 51.68%.

Table 2b. Descriptive Statistics 1960 to 2019

S/N	Symbol/ of Variable	Mean	SD	Min	Max
1.	$MANF$	3.11E+09	8.34E+09	-13.37	4.45E+10
2.	$GDPCAP$	783.652	617.0386	.0409252	3759.55
3.	$DIST$	1236.51	384.07	1018.25	11139
4.	$REER$	2.87E+06	6.10E+06	50.17	2.51E+07
5.	POP	1.21E+07	2.72E+07	2.09	1.96E+08
6.	$OPEN$S	0.639	0.336	0.000	2.139
7.	$TARF$	13.794	5.843	3.400	86.480
8.	$TEXP$	6.519	9.305	0.000	51.677

Source: Author's computation from WDI (2019) and CEPII data base.

In table 2b, average manufacturing value added in the ECOWAS region for the period 1960 to 2019 was about 3.11 billion United States dollars (USD). The figures were slightly lower compared to the manufacturing value added for the period 1975 to 2019 when the ECOWAS treaty had specifically been in operation (see table 2a). A negative minimum value of manufacturing value added was again observed and the possible cause for this has already been explained. Real GDP per capita was approximately 784 USD, which was again less than the value of 617 USD for the specific period of ECOWAS operation.

Average distance between countries in the ECOWAS region for the overall period of the study was approximately 1,237 kilometres, which is approximately the same with the 1,225 kilometres in table 2a. The distance between countries is fixed and hence does not change over time. The slight variation can be associated with differences in the time period for which the mean value was generated. Closer countries had a minimum distance of about 1,018 kilometres. Average value for real effective exchange rate was about 2.9 million and was also slightly higher than the value of 2.8 million in the

ECOWAS period as shown in table 2a. The maximum value of 25.1 million was the same as that obtained in the ECOWAS period. Average population for the overall period in the study was approximately 12.1 million. The value was slightly lower than that of 13.9 million, for the period 1975 to 2019.

On the average, openness measure was about 0.64. The variable for openness was the same with that for the period 1975 to 2019. Average tariff rate applied on manufacturing was approximately 14% and was also unchanged with that observed in the 1975 to 2019 period. Taxes on exports were about 0.64% of tax revenue. The values for export taxes as a percentage of tax revenue were also the same with that obtained in the 1975 to 2019 period. The figures for openness, import tariff and export taxes in both periods considered in the study, suggest that trade liberalization variables did not change for the overall study period and the specific ECOWAS period.

Before estimating the model, the variables for the extent of linear correlation to circumvent multicollinearity problems that invariably lead to biased estimates and less possibility of achieving statistical significance were examined. The results for the Pearson correlation coefficient are shown in tables 3a and 3b, with the level of statistical significance determined at 5 per cent level.

From tables 3a and 3b, it can be seen that most variables in the model exhibit some form of linear relationship. Of concern however are the correlation coefficient values for real exchange rate and population, showing values of over 0.8 for half of the variables used in the study. To deal with the problem of multicollinearity in the model, these variables were removed from the fixed and random effects regression with other model predictors.[14] Estimates for real exchange rate and population were hence presented using a stepwise regression or otherwise partial least squares estimation (Frost, 2020; Gujarati, 2004).

[14] This is important because the existence of multicollinearity reduces the precision of the estimate coefficients, which weakens the statistical power of the regression model. See Gujarati (2004) and Frost (2020) for more explanation on dealing with the problem of multicollinearity.

Table 3a. Correlation matrix 1975 to 2019

	LogMANF	*LogGDPCAP*	*DIST*	*LogREER*	*LogPOP*	*OPENS*	*TARF*	*TEXP*
LogMANF	1							
LogGDPCAP	0.7444*	1						
DIST	-0.1649*	-0.6408*	1					
LogREER	-0.8319*	-0.9348*	0.9136*	1				
LogPOP	0.9553*	0.8487*	-0.6733*	-0.9686*	1			
OPENS	0.08	0.2718*	-0.1961*	-0.4037*	0.1613*	1		
TARF	0.1603*	0.1168	0.0685	-0.1748	0.1263	-0.1167	1	
TEXP	-0.8845*	-0.3431*	0.3343*	0.8444*	-0.3441*	-0.7687*	0.1964	1

Note: * p<0.05

Table 3b. Correlation Matrix 1960 to 2019

	LogMANF	*LogGDPCAP*	*DIST*	*LogREER*	*LogPOP*	*OPENS*	*TARF*	*TEXP*
LogMANF	1							
LogGDPCAP	0.7312*	1						
DIST	-0.1602*	-0.3142*	1					
LogREER	-0.8319*	-0.9422*	0.9282*	1				
LogPOP	0.9554*	0.8660*	-0.3338*	-0.9736*	1			
OPENS	0.0803	0.2715*	-0.0918*	-0.4037*	0.1471*	1		
TARF	0.1603*	0.1168	0.0689	-0.1748	0.1263	-0.1167	1	
TEXP	-0.8845*	-0.3431*	0.3337*	0.8444*	-0.3441*	-0.7687*	0.1964	1

Note: * p<0.05

The result for the fixed and random effects estimates are shown in tables 4a and 4b. Findings for the ECOWAS period, 1975 to 2019, are presented in table 4a and the overall period of the study, 1960 to 2019, in table 4b.

As seen in table 4a, the results from the Hausman test statistic show preference for the random effects model. However, findings for both the fixed and random effects models are reported for comparison purposes and to allow for robustness of results. The results for the fixed effects model are presented, controlling for time and country specific effects using the option for robust standard errors.

Table 4a. Fixed and Random Effects Regression Results (1975 to 2019)

Variables	(1) Fixed Effects	(2) Random Effects
$LogGDPCAP$	2.7279***	1.054143 ***
	(0.2949)	(0.0994)
$DIST$	0.00209	-0.000870
	(0.00576)	(0.00301)
$LogREER$	-1.5167***	-0.479***
	(0.0543)	(0.0887)
$LogPOP$	1.202***	1.093***
	(0.0262)	(0.0392)
$OPENS$	0.0896	0.740*
	(0.807)	(0.433)
$TARF$	0.542	0.401**
	(0.332)	(0.162)
$TEXP$	-0.164**	-0.0894
	(0.0696)	(0.0773)
Constant	-16.21	-8.571
	(11.09)	(5.886)
Observations	28	28
R-squared	0.996	
Country and Time FE	YES	NO
Hausman test	6.36	
P-value	0.1739	

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. Estimates for the exchange rate and population are presented using partial least squares.

The results in table 4a show that increases in per capita GDP and population growth induced positive effects on the level of manufacturing value added in the ECOWAS region. The directions of effect of these variables were the same for the fixed and random effects models. The magnitude of the coefficients were however slightly larger in the fixed compared to the random effects model. Findings show that a 1 per cent

increase in GDP per capita enhanced manufacturing value added by approximately 2.73 per cent in the fixed effects model and 1.05 per cent in the random effects model. Similarly, with 1 per cent increase in population size in the region, manufacturing value added rose by approximately 1.2 per cent in the fixed effects model and 1.1 per cent in the random effects model. These findings are in line with the expected results and suggest that growth in macroeconomic income as well as increase in population size promote the performance of the manufacturing sector in the region. The result for the positive effect of population increase on manufacturing output supports arguments of industrial potential in the African region in terms of the availability of low-cost labour (Signé, and Johnson, 2018).

As expected, the result for the effect of the real exchange rate was negative in both models. However, the magnitudes of the coefficients were not similar in both models. With a 1 per cent rise in the real exchange rate, manufacturing value added fell by approximately 1.52 per cent in the fixed effects model and 0.48 per cent in the random effects model. The result for negative effect of the exchange rate on manufacturing performance was different from that obtained by Umoh and Effiong (2013). The findings were however similar to that of Ojeyinka and Abiodun (2017). Generally, the effect of the exchange rate on industrial sector performance should be negative, such that depreciation will increase industrial productivity through export growth, while appreciation will reduce it via import growth.

Findings for the effect of trade policy variables differed in both models. While the fixed effects model showed significant negative effect of increase in export taxes on manufacturing value added, the random effects model showed significant positive effects of openness and tariff rate on manufacturing value added. Findings from the fixed effects model showed that a 1 per cent rise in export taxes reduced manufacturing value added by approximately 0.16 per cent. In the random effects model, the results showed that a 1 per cent increase in openness improved manufacturing value added by about 0.74 per cent. Findings also associated a 0.40 per cent rise in manufacturing value added with a 1 per cent rise in tariff rate. The result for the effect of export taxes and openness conformed to apriori expectations, suggesting that trade liberalization in the region in the form of reduction in export taxes and increase in trade activities for exports and imports improves

industrial sector performance. This result supports regional trade in Africa, specifically for the ECOWAS region. The implication therefore is that trade liberalization does not induce deindustrialization in Africa. The result suggests that trade between countries in the region is beneficial to manufacturing sector performance and can hence induce sustainable development by setting the pace for industrialization in the region. Findings for positive effects of liberalized trade policy on manufacturing performance are similar to those obtained by Said and Elshennawy (2010) in Egypt and Ojeyinka and Abiodun (2017) in Nigeria. Similar findings were also obtained by Ghose (2000) and Salinas and Aksoy (2006) for samples of developing economies. The results are however contrary to those by Bennel (1998), Shafaeddin (1995), Noorbakhsh and Paloni (2000), Thoborn, (2001) and Siddiqui, (2015). The surprising evidence in the random effects model that a rise in import tariff does not induce the expected negative effect on manufacturing value added can be associated with the apparently high level of per capita income in the region, such that it does not deter effective demand of foreign goods in the domestic economy. The result is however contrary to evidence provided by Said and Elshennawy (2010) that associated increase in wages of manufacturing industries in Egypt with a reduction in tariffs.

As is the case in table 4a, the results in table 4b for the Hausman test statistic also show preference for the random effects model. Findings for both the fixed and random effects models are again shown for comparison purposes and to allow for robustness of results. The results for the fixed effects model are also presented, controlling for time- and country-specific effects using the option for robust standard errors.

The results in table 4b also show that increases in per capita GDP and population growth induce positive effects on the level of manufacturing value added in the ECOWAS region. The direction of effects of these variables is the same for the fixed and random effects models. The magnitude of the coefficients was however slightly larger in the overall period of the study compared to the specific period for ECOWAS (Table 4a).

Table 4b. Fixed and Random Effects Regression Results (1960 to 2019)

	(1)	(2)
VARIABLES	Fixed Effects	Random Effects
$LogGDPCAP$	2.682367 ***	1.1743 ***
	(0.3022)	(0.1009)
$DIST$	0.00244	-0.000672
	(0.00554)	(0.00300)
$LogREER$	-1.5167 ***	-0.479***
	(0.0543)	(0.0887)
$LogPOP$	1.202***	1.108***
	(0.0263)	(0.0356)
$OPENS$	0.0689	0.739*
	(0.804)	(0.433)
$TARF$	0.527	0.397**
	(0.334)	(0.162)
$TEXP$	-0.163*	-0.0897
	(0.0706)	(0.0773)
Constant	-16.77	-8.930
	(10.54)	(5.866)
Observations	28	28
R-squared	0.996	
Number of ID		6
Country FE		
Country and Time FE	YES	NO
Hausman test	7.04	
P-value	0.2178	

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. Estimates for the exchange rate and population are presented using partial least squares.

The findings in table 4b show that a 1 per cent increase in GDP per capita raised manufacturing value added by approximately 2.68 per cent in the fixed effects model and 1.07 per cent in the random effects model. Similarly, with a 1 per cent increase in population size in the region, manufacturing value added increased by approximately 1.2 per cent in the fixed effects model and

1.1 per cent in the random effects model. This result is approximately similar to what was obtained in table 4a and suggests an approximately one to one effect of population growth on manufacturing value added. Findings thus support arguments of the underlying potential in Africa for industrial sector performance in terms of the availability of low-cost labour (Signé and Johnson, 2018). These findings are in line with the expected result and suggest that growth in macroeconomic income as well as increase in market size promote the performance of the manufacturing sector in the region for the period before and after the implementation of the ECOWAS treaty. As expected, the result for the effect of the real exchange rate was negative. In the fixed and random effects models, slight differences were only noticeable in the magnitude of the coefficient. With a 1 per cent rise in the real exchange rate, manufacturing value added fell by approximately 1.52 per cent in the fixed effects model and 0.48 per cent in the random effects model. The coefficient for the real exchange rate remained unchanged for the period 1960 to 2019, and the period 1975 to 2019.

Findings for the effect of trade policy variables were also similar in terms of magnitude and direction of effect for both periods considered in the study. Similar to the findings in table 4a, while the fixed effects model showed significant negative effect of increase in export taxes on manufacturing value added, the random effects model showed significant positive effects of openness and tariff rate on manufacturing value added. Findings from the fixed effects model showed that a 1 per cent rise in export taxes reduced manufacturing value added by approximately 0.16 per cent. In the random effects model, the results showed that a 1 per cent increase in openness improved manufacturing value added by about 0.74 per cent. Findings also associated a 0.40 per cent rise in manufacturing value added with a 1 per cent rise in tariff rate. The result for the effect of export taxes and openness conformed to a priori expectations, suggesting that trade liberalization in the form of reduction in export taxes and increase in trade activities for exports and imports improves industrial sector performance. This result supports regional trade in Africa, specifically for the ECOWAS region. The implication therefore is that trade liberalization does not induce

deindustrialization in Africa. As earlier mentioned, findings in this regard are similar to those obtained by Said and Elshennawy (2010) in Egypt and Ojeyinka and Abiodun (2017) in Nigeria. Similar results were also obtained by Ghose (2000) and Salinas and Aksoy (2006). The results are however contrary to those by Bennel (1998), Shafaeddin (1995), Noorbakhsh and Paloni (2000), Thoborn (2001), and Siddiqui (2015). The finding in the random effects model that a rise in import tariff does not induce the expected negative effect on manufacturing value added is surprising and contrary to evidence provided by Said and Elshennawy (2010) associating a rise in the wages of the manufacturing sector with a reduction in tariff rates in Egypt.

5. Conclusion

This paper focused on the role of trade liberalization on the industrial sector using manufacturing value added as a measure of industrial sector performance. Evidence is provided for trade openness, import tariffs, and export taxes as measures of trade liberalization. The results are provided for the 1975 to 2019 period when the ECOWAS treaty had been in existence, and 1960 to 2019 which covers the ECOWAS and non-ECOWAS treaty period. Using the fixed and random effects model, findings showed no difference in the effect of trade liberalization variables for both periods. Evidence provided suggests that trade oriented policy in the form of increased openness and reduction in export taxes has the tendency to raise manufacturing value added in the region. Interestingly, increase in import tariffs did not induce expected negative effects on manufacturing sector performance. Findings also suggest that increase in per capita income and population growth enhances manufacturing sector performance in the region, while a fall in the real exchange rate will induce improvements in the manufacturing sector. In line with the findings of the paper, policy efforts to raise manufacturing sector performance should pursue a trade-oriented policy, specifically in terms of increased openness and reduction in export taxes. Aside pursuing a trade liberalization policy, efforts that pursue improved per capita income, encourage population growth and reduction in the real exchange rate will also promote industrial sector performance. Maximizing the benefits of trade policy in the region, especially as it relates to ECOWAS and the proposed AfCFTA therefore, requires the consideration of not only trade policy

variables but also measures that encourage a rise in macroeconomic income, harnessing the benefits of population growth and reducing the real exchange rate in the region.

References

Ahmed, G., Arshad Khan, M., and Afzal, M. (2015). Trade Liberalization and Industrial Productivity: Evidence from Pakistan. MPRA Paper No. 70744, University Library of Munich, Germany.

Amjad, R, Ghani, E, Din, M, and Mahmood, T. (2012). Export barriers in Pakistan: Results of a firm-level survey. *The Lahore Journal of Economics*, 17, 103-134.

Baldwin, R.E. (1992). Measurable dynamic gains from trade. *J. Polit. Econ.*, 100, 162–174.

Beecroft, I., Osabuohien, E.S., Efobi, U.R., Olurinola, I., and Osabohien, R.A. (2020). Manufacturing export and ICT infrastructure in West Africa: Investigating the roles of economic and political institutions. *Institutions and Economies*, 12(1), 1-36.

Bennel, P. (1998). Fighting for Survival: Manufacturing industry and adjustment in sub-Saharan Africa. *Journal of International Development*, l4(1), 83-114.

Bergstrand, J.H., Mario L., and Yoto V.Y. (2014). Economic Integration Agreements, Border Effects, and Distance Elasticities in the Gravity Equation. CESinfo.

Bollen, K.A., and Brand, J.E. (2008). Fixed and Random Effects in Panel Data Using Structural Equations Models. On-Line Working Paper Series, California Center for Population Research.

Briggs, K., and Sheehan, K.M. (2019). Service trade liberalization and economic growth. *The Journal of Developing Areas*, 53(4).

Das, D.K. (2002). Trade liberalization and industrial productivity: an assessment of developing country experiences. Indian Council for Research on International Economic Relations. Working paper no. 77.

de Melo, J., Panagariya, J., and Rodrik, D. (1993). The new regionalism: a country perspective. In: J. de Melo and A. Panagariya (eds). *New Dimensions in Regional Integration.* Cambridge University Press.

Dutta, D., and Ahmed, N. (2006). Trade Liberalization and Industrial Growth in Pakistan: A Cointegration Analysis. Department of Economics, University of Sydney, NSW 2006, Australia.

Falvey, R., Foster-McGregor, N., Greenaway, D. (2012). Trade liberalization, economic crises, and growth. *World Dev.*, 40(11), 2177–2193.

Forouton, F. (1993). Regional Integration in sub-Saharan Africa: Past Experience and Future Prospects. In: J. de Melo and A. Panagariya (eds). *New Dimensions in Regional Integration.* Cambridge University Press.

Frost, J. (2020). Multicollinearity in Regression Analysis: Problems, Detection, and Solutions.

Ghan, G.M. (2009). The impact of trade liberalization on developing countries' trade balances with Industrial and developing countries: an Econometric study. *International Journal of Business and Society*, 10(2), 53 – 64.

Ghose, A.K. (2000). Trade liberalization and manufacturing employment, Employment Paper no.2000/3. Geneva, International Labour Office.

Goldar, B. (2002). Trade liberalization and manufacturing employment: The case of India. International Labour Organization. Employment Paper 2002/34.

Green, W.H. (2003). Econometric analysis, 5th ed. Upper Saddle River: Prentice Hall, ISBN 0-13066189-9.

Gujarati, D.N. (2004). Basic econometrics. 4th ed. Mc Graw Hill.

International Monetary Fund (IMF). (2016). Global Trade, What's behind the Slowdown? World Economic Outlook. Washington, DC, October.

Jetter, M., Laudage S., and Stadelmann, D. (2019). The Intimate Link Between Income Levels and Life Expectancy: Global Evidence from 213 Years. Social Science Quarterly DOI: 10.1111/ssqu.12638

Kabir, M., Ruhul, S., and Nasser A. (2017). The gravity model and trade flows: recent developments in econometric modeling and empirical evidence. *Economic Analysis and Policy* 56: 60–71.

Krugman, P.R. (1990). *Rethinking International Trade.* Massachusetts: The MIT Press.

Krugman, P.R., and Obstfeld, M. (2003). International Trade-Krugman, 6th ed. San Francisco and New York: World Student Series.

Majeed, S., Ahmed, Q.S., and Butt, M.S. (2010). Trade liberalization and total factor productivity growth (1971-2007). *Pakistan Economics and Social Review*, 48(1), 61-84.

Mattoo, A. (2006). Measuring services trade liberalization and its impact on economic growth: an illustration. *Journal of Economic Integration*, 21(1), 64-98.

Mayer, T., and Zignago, S. (2006). Notes on CEPII's distances measures. Available at http://www.cepii.fr/distance/noticedist_en.pdf

Mazumder, R. (2008). Trade Liberalization & WTO: Impact on Developing Countries. Available at SSRN: https://ssrn.com/abstract=1084394.

Melitz, M.J. (2003). The impact of trade on intra-industry reallocations and aggregate industry productivity. *Econometrica*, 71: 1695–725.

Noorbakhsh, F., and Paloni, A. (2000). The de-industrialization hypothesis, structural adjustment programs and the sub-Saharan dimension. In H. Jalilian, Industrial Development and Policy in Africa: Issues of De-industrialization and Development Strategy, 107-136.

Nowak-Lehmann, D.F. (2000). Trade Policy and its Impact on Economic Growth: Can Openness Speed up Output Growth? Georg-August-Universität Göttingen. Ibero-America Institute for Economic Research (IAI, Göttingen).

Ojeyinka, T., and Abiodun, A. (2017). Trade liberalization and economic performance in Nigeria: Evidence from agricultural and manufacturing sectors. *African Journal of Economic Review*, V(III).

Osabuohien, E.S., Efobi, U.R., Odebiyi, J.T., Fayomi, O.O, and Salami, A.O. (2019). Bilateral trade performance in West Africa: A gravity model estimation. *African Development Review*, 1–14.

Osakwe, P.N., Santos –Paulino, A.U., Dogan, B. (2018). Trade Dependence, Liberalization and Export Diversification in developing countries. UNCTAD Research Paper No. 2.

Ramesh, P.C. (2014). Trade Liberalization and Economic Growth in Developing Countries: Does Stage of Development Matter? Crawford School Research Paper 14-13. Crawford School of Public Policy, The Australian National University.

Razzaque, A., Khondker, B.H., Ahmed, N., Mujeri, M.K. (2003). Trade Liberalization and Economic Growth: Empirical Evidence on Bangladesh. MIMAP-Bangladesh Focus Study No. 03 Bangladesh Institute of Development Studies (BIDS).

Said, M., and Elshennawy, A. (2010) The impact of trade liberalization on manufacturing employment and wages in Egypt 1990-2007. Amerian University in Cairo, Department of Economics.Online MPRA Paper No. 25759.

Salinas, G., and Aksoy, A. (2006). Growth before and after trade liberalization WPS4062 World Bank Policy Research Working Paper 4062, November 2006.

Shafaeddin, M. (1995). The impact of trade liberalization on export and GDP Growth in least developed countries. UNCTAD Review.

Shafaeddin, S.M. (2005). Trade liberalization and economic reform in developing countries: Structural change or de-industrialization? UNCTAD/OSG/DP/2005/3

Sheikh, S.A., and Ahmed, S. (2011). Impact of trade liberalization and domestic economic reforms on technical efficiency of agro-based Industries in Pakistan. *International Journal of Business and Social Sciences*, 2(33), 219-226.

Shobande, O.A. (2019) Effect of economic integration on agricultural export performance in selected West African countries. *Economies* 7(79); doi: 10.3390/economies7030079

Siddiqui, K. (2015).Trade Liberalization and economic development: A critical review. *International Journal of Political Economy*, 44, 228–247.

Signé, L., and Johnson, C. (2018). The potential of manufacturing and industrialization in Africa. Trends, opportunities, and strategies. Africa Growth Initiative, Brookings.

Silajdzic, S., and Meh, E. (2018). Trade Openness and Economic Growth: Empirical Evidence from Transition Economies. Trade and Global Market infotech.

Silver, M.S., and Golder, P. (1981). Negative value added and the measurement of production changes. *Journal of Economic Studies*, 8(1), 3 – 15.

Thirlwall, A.P. (2000). Trade, Trade Liberalization and Economic Growth: Theory and Evidence. The African Development Bank.

Thoburn, J. (2001). Could import protection drive manufacturing exports in Africa? In D. Belshaw and I. Livingstone (eds), *Renewing Development in Sub- Saharan Africa: Policy, Performance and Prospects*, Chapter 16, pp. 285–296, London: Routledge.

Umoh, O.J., and. Effiong, E.L. (2013). Trade openness and manufacturing sector performance in Nigeria. *The Journal of Applied Economic Research* 7 (147).

UNCTAD. (2017). Economic Development in Africa Report 2017: Tourism for Transformative and Inclusive Growth. United Nations publication. Sales No. E.17. II.D.2. New York and Geneva.

UNIDO. (2020) World Manufacturing Production Statistics for Quarter II 2020. United Nations Industrial Development Organization. UNIDO.

United Nations (UN). (2018). Economic Development in Africa Report 2018. Migration for Structural Transformation New York and Geneva: United Nations. https://unctad.org/en/PublicationsLibrary/aldcafrica2018_en.pdf

United Nations (UN). (2019). Economic Development in Africa Report. United Nations Conference on Trade and Development. Geneva.

United Nations Economic Commission for Africa (UNECA). (2013). Two Decades of Trade Liberalization and Market Expansion in Eastern Africa – Towards a New Economic Geography? UNECA Sub-Regional Office for Eastern Africa (UNECASRO-EA).

United Nations Economic Commission for Africa (UNECA). (2014). Dynamic Industrial Policy in Africa: Innovative Institutions, Effective Processes and Flexible Mechanisms: Economic Report on Africa. Addis Ababa, Ethiopia.

Were, M. (2015) Differential effects of trade on economic growth and investment: A cross-country empirical investigation. *Journal of African Trade* 2, 71–85.

World Bank (2019). World Development Indicators. World Bank Group.

Zahonogo, P. (2017). Trade and economic growth in developing countries: Evidence from sub-Saharan Africa. *0020*, http://dx.doi.org/10.1016/j.joat.2017.02.001