FREE TRADE AREA AGREEMENT AND THE ECONOMY:
Theory, Evidence and Lessons for Nigeria

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ABSTRACT

The effects of the recently-signed African Continental Free Trade Area (AfCFTA) Agreement on the Nigerian economy when implementation starts have raised some concern. This study therefore investigates the potential impacts of the AfCFTA on the economy. A partial equilibrium model based on the SMART simulation tool included in the World Integrated Trade Solutions (WITS) was used. The results show that the tariff revenue loss from the AfCFTA implementation outweighs the positive welfare gains and total trade increase gains. Variations exist across Nigeria's major trading partners within the continent. The net total trade creation with Swaziland, Kenya, Cameroon, Namibia and South Africa is positive, while it is negative for Côte d'Ivoire, Senegal, Ghana and Morocco. Hence, there is a need to minimize the loss in tariff revenue that could result from the imports surge from other African countries by enlarging the domestic tax base. Adequate incentives and compensation for local producers of commodities that will face severe competition from other African countries will not only increase domestic production of these commodities but will equally minimize revenue loss through indirect taxes on these commodities.

Key Words: African Continental Free Trade Area, Trade integration, Partial equilibrium

JEL classification: F13, F14, F15

1. Introduction

The African Continental Free Trade Area (AfCFTA), which is aimed at creating a single market for goods and services across 55 African countries,

allowing the free movement of business travellers and investors, and creating a continental customs union to streamline trade and attract long-term investment, will be the world's largest free trade area when fully operational. Hence, AfCFTA is a potential opportunity for countries to help each other grow and make African development more inclusive. However, there are scepticisms on the ability of the AfCFTA to deliver its potential benefits in Africa. Generally, this is based on two major factors. The first is that the existing regional trade blocs have similar ambitious objectives but have been characterized with different challenges ranging from reluctance of member states to implement agreements to overlapping memberships leading to low level of regional integration. Even though the AfCFTA seems to be a solution to the overlapping membership problem, the co-existence of the existing regional trade agreements and the AfCFTA agreement until the continental customs union is in force, is another complication to ponder on. Therefore, the existing African regional trade arrangements are perceived to have delivered limited benefits to their respective member states, which has led to the unanswered question of whether AfCFTA will succeed where other regional trade agreements have failed. The second factor is based on the fact that trade liberalization creates net losers and gainers. Therefore, uncertainty on potential loss and supportive policies for compensation is another source of scepticism among African economies.

There are also country-specific concerns. In Nigeria, there are concerns that the AfCFTA, given the size of the economy, could make the country a dumping ground for products not only from the rest of Africa but also from other developed economies which may want to use the vehicle of AfCFTA to export their goods to Nigeria through other African countries. This concern is premised on two factors. While the first is based on inadequate infrastructure to make Nigerian producers competitive in the face of market liberalization that will be brought about by the AfCFTA, the other is based on determining the nationality of the traded products – known as rules of origin.

Given the above, the questions are: What does Nigeria stand to gain from the AfCFTA? What are the potential losses and in which sectors of the economy? Providing answers to these questions is relevant to the policy of designing appropriate compensation mechanisms for sectors which may suffer loss from implementation of the AfCFTA agreement in Nigeria. Hence,

the objective of this study is to assess the impact of AfCFTA on the Nigerian economy from the perspectives of trade theories and previous studies.

The rest of the paper is organized as follows: besides the introductory section where the core of the research and the research questions as well as objective are presented, section 2 focuses on stylized facts of Nigeria's trade integration within Africa and its place in the African development context. Section 3 presents the literature review, framework of analysis and methodology while sections four and five present the empirical analysis and emanating policy lessons respectively.

2. Stylized Facts of Nigeria's Intra-African Trade Integration and its Place in African Development Context

2.1 Nigeria's intra-African trade integration

The top 30 destinations for Nigeria's trade (exports and imports) as well as importing and supplying markets for goods traded by Nigeria are presented in table 1. In terms of exports, few African countries made the top importers of Nigeria's exports, with Ghana, South Africa, and Côte d'Ivoire coming 4th, 6th and 14th in 2019. Overall, seven African countries made the list of 30 leading importers of Nigeria exports (table 1). However, only three African countries made the list of leading 30 exporting partners of Nigeria's imports. The three African countries are Eswatini (also known as Swaziland), South Africa and Bénin, which came 6th, 18th and 23rd respectively on the list of major supplying markets of Nigeria's imports. This trend implies that Nigeria's trade within Africa is skewed more towards exports than imports.

In all, Nigeria's 30 leading trading partners accounted for 92.8% and 90.5% of its exports and imports respectively in the past half a decade. However, Nigeria's trade with Africa only accounted for 14.9% and 4.5% of its exports and imports respectively within the same period (figure 1). This shows that the level of Nigeria's intra-African trade integration is low, but significantly lower for its imports. However, Nigeria's exports to other African nations improved from 14.5% in 2015 to 20.5% in 2019 while its intra-African imports also increased marginally from 6.2% to 6.5% within the same period. This is an indication that Nigeria is increasingly penetrating

African markets. Hence, the increased liberalization that comes with AfCFTA may help to further enhance its penetration of more African markets.
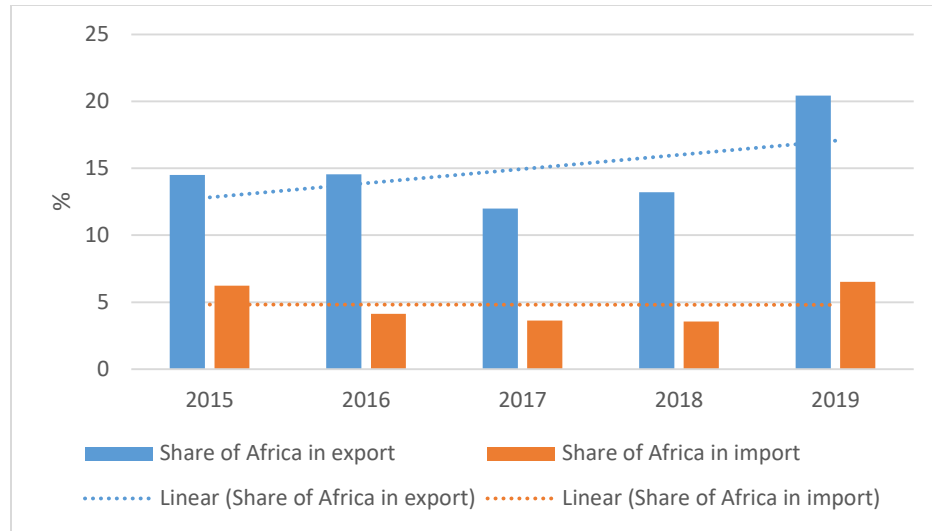

Figure 1. Nigeria's Intra-African Trade Integration.

Source: Authors computation based on ITC trade map statistics.

Table 1. Nigeria's Trade Direction: Top 30 Trade Partners (Billion USD)

S/N	Importers of Nigeria's Export	2015	2016	2017	2018	2019	Exporters of Nigeria's Import	2015	2016	2017	2018	2019
	World (A)	48.47	34.76	41.01	52.92	53.62	World (A)	33.84	35.95	28.84	36.48	47.39
1	India	8.40	6.27	7.32	8.40	8.26	China	7.88	7.07	5.39	7.08	12.06
2	Spain	4.59	3.20	4.06	5.36	5.32	India	2.06	1.84	1.41	1.91	5.70
3	Netherlands	5.74	2.72	3.47	5.68	4.87	United States of America	2.96	2.88	2.29	2.68	4.68
4	Ghana	.52	.44	.22	.26	4.00	Netherlands	2.10	4.19	2.65	4.16	3.49
5	France	2.59	2.18	3.16	4.19	3.55	Belgium	2.53	4.36	3.71	3.08	2.38
6	South Africa	2.65	1.90	1.83	3.38	3.15	Eswatini	.09	.09	.09	.09	1.56
7	United States of America	1.74	4.20	5.23	3.22	2.82	Germany	1.06	1.11	1.16	.99	1.46
8	Italy	1.09	.74	.96	1.60	2.13	United Kingdom	1.44	1.48	1.11	.92	1.35

S/N	Importers of Nigeria's Export	2015	2016	2017	2018	2019	Exporters of Nigeria's Import	2015	2016	2017	2018	2019
9	China	.80	.50	.67	.88	1.67	United Arab Emirates	.51	.65	.35	.41	1.20
10	Indonesia	1.19	1.35	1.37	2.21	1.48	Korea, Republic of	.58	.40	.58	3.95	1.01
11	Turkey	.61	.24	.41	.48	1.36	France	.81	1.39	1.04	1.05	.96
12	Canada	.53	.95	1.42	1.48	1.34	Italy	.80	.52	.87	.67	.87
13	United Kingdom	2.10	1.23	1.11	1.93	1.16	Russian Federation	.30	.45	.63	.86	.74
14	Côte d'Ivoire	1.66	.89	.63	1.15	1.16	Japan	.45	.55	.28	.31	.72
15	Germany	.95	.62	.62	1.12	1.16	Brazil	.87	1.04	.74	.66	.71
16	Cameroon	.51	.52	.35	.30	.89	Spain	.71	.61	.53	.65	.55
17	Sweden	.41	.70	.88	2.02	.85	Canada	.25	.28	.30	.34	.50
18	Brazil	3.19	.85	.58	1.71	.85	South Africa	.59	.55	.36	.44	.48
19	Portugal	.39	.45	.46	.57	.83	Malaysia	.25	.38	.24	.49	.48
20	Angola	.06	.00	.08	.00	.57	Indonesia	.46	.37	.37	.33	.45
21	Togo	.09	.21	.96	.94	.51	Turkey	.28	.24	.25	.31	.44
22	Poland	.06	.05	.06	.17	.49	Denmark	.10	.10	.10	.08	.39
23	Thailand	.08	.00	.31	.79	.46	Benin	.06	.01	.02	.02	.38
24	Senegal	.64	.50	.35	.60	.39	Ireland	.33	.37	.32	.24	.32
25	Australia	.05	.06	.35	.22	.37	Saudi Arabia	.19	.26	.26	.42	.31
26	Singapore	.40	.41	.27	.13	.31	Singapore	.17	.19	.16	.21	.30
27	Korea, Republic of	.61	.16	.21	.30	.31	Thailand	.68	.27	.13	.17	.25
28	Japan	1.69	.47	.46	.48	.29	Latvia	.68	.46	.48	.56	.20
29	Malaysia	.25	.16	.19	.15	.27	Sweden	.25	.21	.10	.12	.17
30	Norway	.14	.01	.00	.00	.23	Ukraine	.16	.09	.11	.11	.15
	Top 30 total (B)	43.75	31.98	37.99	49.71	51.06	Top 30 total (B)	29.59	32.40	26.02	33.32	44.27
	African aggregation (C)	7.02	5.06	4.91	7.00	10.96	African aggregation (C)	2.11	1.48	1.04	1.30	3.08

S/N	Importers of Nigeria's Export	2015	2016	2017	2018	2019	Exporters of Nigeria's Import	2015	2016	2017	2018	2019
				Trade proportions (%)								
	Share (%) of top 30 in total (B/A*100)	90.3	92.0	92.6	93.9	95.2	Share (%) of top 30 in total (B/A*100)	87.4	90.1	90.2	91.4	93.4
	African share (%) in total (C/A*100)	14.5	14.6	12.0	13.2	20.4	African share (%) in total (C/A*100)	6.2	4.1	3.6	3.6	6.5

Source: ITC trade map and some computations.

In terms of commodity traded, the twenty (20) major export commodities from Nigeria are presented in table 2. These commodities account for 99.0% and 96.4% of Nigeria's intra-African exports and exports to the world in 2019. The table shows that Nigeria's exports are concentrated on a few commodities such as crude petroleum products, flexible tubing of iron or steel and vessels and other floating structures. These three commodities account for 88.8% and 84.7% of Nigeria's intra-African exports and exports to the world respectively in 2019. This implies that Nigeria's exports are significantly concentrated on a few goods.

Also, Africa's share as well as the global share of each of Nigeria's export commodities is presented in table 2. It is indicated that the level of trade integration in each commodity varies. While Nigeria exports only 13.8% of its crude to other African economies, 100% of commodities such as flexible tubing of iron or steel, electrical energy, Portland cement, cruise ships, excursion boats and similar vessels as well as milk and cream, concentrated but unsweetened, are traded within Africa. However, the share of these commodities in the bundle of Nigeria's export commodities to the world is very marginal, except for flexible tubing of iron or steel. In sum, the commodities which Nigeria mostly trades within Africa are very marginal in its total exports.

Table 2. Leading Commodity Exports from Nigeria in 2019, HS 6

	Export to Africa (A) mill. USD	Export to the World (B) mill. USD	African share (%) (A/B* 100)	Share of each commodity in exports to African	Share of each commodity in exports to the world
All products	10959.7	53624.7	20.4	-	-
Petroleum oils and oils obtained from bituminous minerals, crude	5671.0	41045.1	13.8	51.7	76.5
Flexible tubing of iron or steel, with or without fittings	2096.4	2096.4	100.0	19.1	3.9
Vessels and other floating structures for breaking up	1966.0	2256.3	87.1	17.9	4.2
Floating or submersible drilling or production platforms	546.3	549.8	99.4	5.0	1.0
Vessels for the transport of goods and vessels for the transport of both persons and goods	194.4	197.3	98.5	1.8	0.4
Cigars, cheroots, cigarillos and cigarettes consisting wholly of tobacco substitutes	85.7	87.7	97.7	0.8	0.2
Electrical energy	85.7	85.7	100.0	0.8	0.2
Urea, whether or not in aqueous solution (excluding that in pellet or similar forms, or ...	43.5	151.9	28.6	0.4	0.3
Portland cement (excluding white, whether or not artificially coloured)	38.3	38.3	100.0	0.3	0.1
Helicopters of an unladen weight > 2000 kg	32.4	50.9	63.6	0.3	0.1
Natural gas, liquefied	15.5	4980.8	0.3	0.1	9.3
Cigarettes, containing tobacco	15.2	15.6	98.0	0.1	0.0
Uncooked pasta, not stuffed or otherwise prepared, not containing eggs	13.2	13.2	99.6	0.1	0.0
Soups and broths and preparations therefor	10.3	10.5	97.9	0.1	0.0
Light-vessels, fire-floats, floating cranes and other vessels, the navigability of which is ...	7.8	82.5	9.5	0.1	0.2
Carboys, bottles, flasks, jars, pots, phials and other containers, of glass, of a kind used ...	7.6	7.9	96.5	0.1	0.0
Waters, incl. mineral and aerated, with added sugar, sweetener or flavour, for direct consumption	6.8	7.3	93.6	0.1	0.0

	Export to Africa (A) mill. USD	Export to the World (B) mill. USD	African share (%) (A/B* 100)	Share of each commo-dity in exports to African	Share of each commo-dity in exports to the world
Goods of heading 3808 containing one or more of the following substances: aldrin (ISO); binapacryl	5.9	8.5	70.2	0.1	0.0
Cruise ships, excursion boats and similar vessels principally designed for the transport of …	5.9	5.9	100.0	0.1	0.0
Milk and cream, concentrated but unsweetened (excluding in solid forms)	5.5	5.5	100.0	0.1	0.0
Aggregate of the 20 leading commodities traded	10853.5	51697.0			
Share (%) of the 20 selected commodities in total	99.0	96.4		99.0	96.4

Source: ITC trade map and some computations

Unlike exports, Nigeria's imported commodities are less concentrated in a few commodities. While the 20 leading commodity imports from Africa accounted for 78.6% of total imports from Africa in 2019, they only accounted for 13.8% of total Nigeria imports from the world in the same year (table 3). This shows that Africa offers few commodities desired by Nigerians compared to what the rest of the world offers. Also, unlike in the case of leading export commodities where African markets were the only destinations for a considerable number of the commodities, only laboratory, hygienic or pharmaceutical glassware (100%), fresh apples (93.7%), crown corks of base metal (82.2%) and chemical products and preparations of the chemical or allied industries (59.1%) are significantly sourced by Nigeria from African markets. Others are liquefied butanes (46.3%) and polypropylene in primary forms (44.5%). Also, Nigeria's imports from Africa are concentrated in laboratory, hygienic or pharmaceutical glassware, and medium oils and preparations of petroleum or bituminous minerals, which accounted for 46.8% and 14.4%, respectively of its imports within the continent in 2019. However, Nigeria's imports from the rest of the world are not significantly concentrated in any commodity. Medium oils and preparations of petroleum

or bituminous minerals and laboratory, hygienic or pharmaceutical glassware only accounted for 4.7% and 3.0% of its import from the rest of the world in the same year.

Hence, with the liberalization that comes with AfCFTA, only the domestic producers of laboratory, hygienic or pharmaceutical glassware as well as medium oils and preparations of petroleum or bituminous minerals face significant threat from other African markets. Others with some level of threat are those in the production of crown corks of base metal, chemical products and preparations of the chemical or allied industries, liquefied butanes, and polypropylene in primary forms.

In sum, Nigeria's trade with Africa and with the rest of the world is significantly dominated by crude petroleum oils and oils obtained from bituminous minerals, while its imports are dominated by laboratory, hygienic or pharmaceutical glassware as well as medium oils and preparations of petroleum or bituminous minerals, not containing biodiesel. However, its exports are more concentrated in a few commodities; only four commodities accounted for 93.7% and 85.6% of exports to Africa and the rest of the world respectively in 2019 (table 2). In the case of imports, the four leading commodities accounted for 65.9% of Nigeria's imports from other African countries, while the proportion of the four leading commodities from the world was less than 10% in the same year (table 3).

Table 3. Nigeria's Leading Commodity Imports in 2019, HS 6

	Imports from Africa, USD m	Imports from the world, USD m	African Share (%)	Share of each commodity in imports from Africa	Share of each commodity in imports from the World
All products	3085.0	47387.3	6.5		
Laboratory, hygienic or pharmaceutical glassware, whether or not graduated or calibrated, of ...	1444.6	1444.9	100.0	46.8	3.0

	Imports from Africa, USD m	Imports from the world, USD m	African Share (%)	Share of each commodity in imports from Africa	Share of each commodity in imports from the World
Medium oils and preparations, of petroleum or bituminous minerals, not containing biodiesel, ...	444.6	2211.8	20.1	14.4	4.7
Polypropylene, in primary forms	97.2	218.7	44.5	3.2	0.5
Light oils and preparations, of petroleum or bituminous minerals which >= 90% by volume "incl. ...	46.0	588.0	7.8	1.5	1.2
Chemical products and preparations of the chemical or allied industries, incl. those consisting ...	35.7	60.5	59.1	1.2	0.1
Butanes, liquefied (excluding of a purity of >= 95% of N-butane or isobutane)	34.0	73.5	46.3	1.1	0.2
Fresh apples	33.7	36.0	93.7	1.1	0.1
Mixtures of odoriferous substances and mixtures, incl. alcoholic solutions, with a basis of ...	33.5	160.4	20.9	1.1	0.3
Frozen mackerel (*Scomber scombrus, Scomber australasicus, Scomber japonicas*)	32.8	193.7	17.0	1.1	0.4
Food preparations, n.e.s.	29.5	128.1	23.0	1.0	0.3
Frozen jack and horse mackerel (*Trachurus* spp.)	24.6	109.8	22.4	0.8	0.2
Salts, incl. table salt and denatured salt, and pure sodium chloride, whether or not in aqueous ...	21.5	63.0	34.1	0.7	0.1
Machinery, plant or laboratory equipment, whether or not electrically heated, for the treatment ...	20.7	291.8	7.1	0.7	0.6
Motor vehicles for the transport of >= 10 persons, incl. driver, with compression-ignition ...	19.6	79.7	24.7	0.6	0.2
Chassis fitted with engines, for tractors, motor vehicles for the transport of ten or more ...	18.9	620.6	3.0	0.6	1.3
Motor vehicles for the transport of >= 10 persons, incl. driver, not with compression-ignition ...	18.8	83.1	22.6	0.6	0.2
Vessels and other floating structures for breaking up	18.6	53.5	34.8	0.6	0.1

	Imports from Africa, USD m	Imports from the world, USD m	African Share (%)	Share of each commodity in imports from Africa	Share of each commodity in imports from the World
Plasters consisting of calcined gypsum or calcium sulphate, whether or not coloured, with or **...**	17.9	52.8	33.9	0.6	0.1
Nonwovens, whether or not impregnated, coated, covered or laminated, n.e.s., weighing > than **. . .**	17.0	33.1	51.5	0.6	0.1
Crown corks of base metal	16.3	19.8	82.2	0.5	0.0
Sum of the 20 leading products imports	2425.5	6522.7			
Share (%) of the leading 20 commodities in total	78.6	13.8		78.6	13.8

Source: ITC trade map and some computations.

Export ratio and import penetration rate are important concepts in considering a country's trade structure. While the former is the percentage of domestic output that is exported, the latter is the percentage of domestic demand fulfilled by imports (OECD 2003). The import penetration rates for many African countries such as Djibouti, Seychelles, Liberia, Lesotho, Guinea, Cape Verde, Tunisia and Mozambique is above 60% (figure 2). This implies that these countries are heavily dependent on imports which account for more than 50% of their GDPs. These are potential markets for Nigerian commodities in Africa. Few African countries have a high export ratio (above 50%). These countries include Djibouti, Congo Republic, Equatorial Guinea, Gabon, Libya, Seychelles, and Tunisia. These countries represent a major threat to Nigeria when AfCFTA opens. However, none of these countries makes the list of major exporters of Nigeria's imports (see table 1). This reduces their potential threat.

Also, the majority of African countries (including Nigeria) demonstrate higher import penetration than export ratio, which shows that a significant proportion of African economies are net importers (figure 1). It was also noticed that Nigeria is one of the countries with the lowest export ratios and

import penetration. This is an indication that external trade is low in Nigeria compared to the goods and services the nation produces. This would make it a bit vulnerable when AfCFTA is implemented as the nation could be at the receiving trade end, especially from some of its West African neighbours such as Equatorial Guinea, Gabon (see figure 2) and Bénin Republic (see table 1).
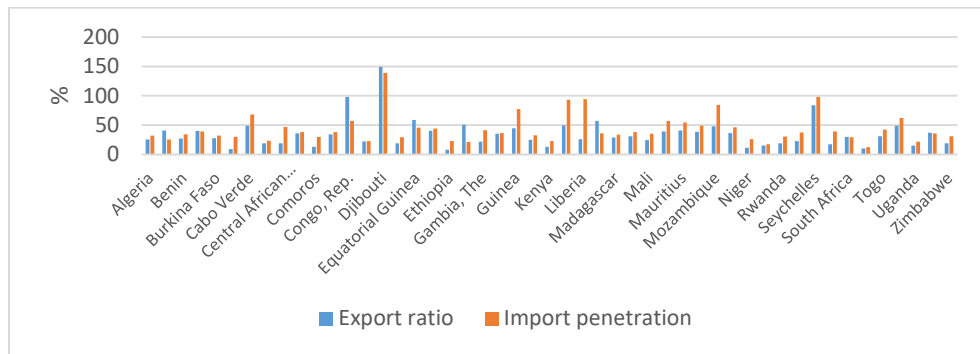

Figure 2. Export Ratio and Import Penetration of African Countries.

Source: World Bank (World Development Indicators).

2.2 Nigeria's place in African development context and the implications for AfCFTA

Many economies in Africa in the recent decade are characterized with "premature deindustrialization," whereby they start to lose their manufacturing sector and its jobs that were not developed in the first place to the services sector. Premature deindustrialization has a potential significant negative economic effect, including lowering economic growth and less inclusive growth. One of the reasons for the rising buoyant services sector in African countries generally is growing internal demand, especially for telecommunications. The huge increase in mobile phone use and increasing internet penetration has played a central role in booming the services sector in Africa. Besides, financial services are equally benefiting and developing considerably due to improvement in ICT utilization. However, the laggard in the growth story has been the manufacturing sector — a sector which is indispensable in the production of exportable commodities. Otherwise the AfCFTA will face challenges where African economies will have limited commodities to trade with one another, or at best will trade in commodities at

very low ebb in their value chains. This will not help in achieving the required inclusive development in the continent. The countries with leading manufacturing sectors as percentage of GDP in Africa are Swaziland (29.4%), Algeria (24.3%), Congo Democratic Republic (20.0%), Equatorial Guinea (19.6%), and Gabon (19.0%) (figure 3).
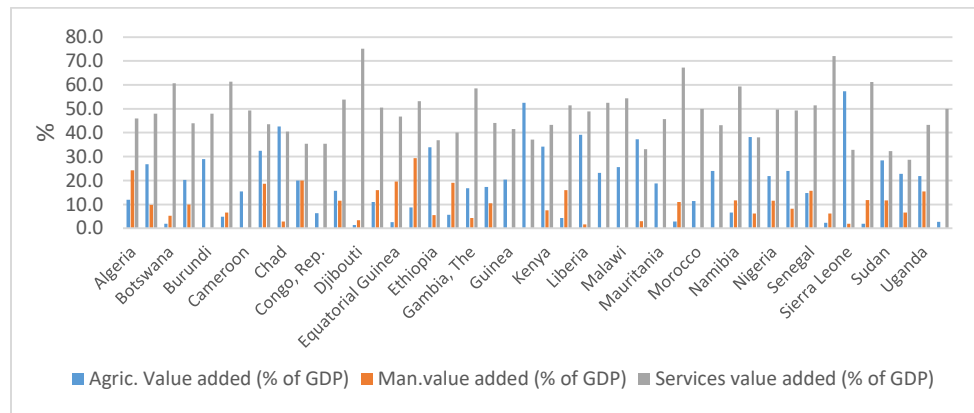

Figure 3. Decomposition of GDP Growth by Sector (Agriculture, Manufacturing, Services), 2019

Source: World Bank's World Development Indicators.

The small size of the manufacturing sector in most developing countries is traceable to inadequate competitiveness of the manufacturing sector caused by inadequate access to electricity, poor supportive operating environment and weak financing policies. What the weak operating environments also reflect is low scores by West African countries on ease of doing business. In the 2019 ranking in doing business indicators, 42.6% of African economies performed below the average score of 50 (figure 4). The situation has, however, improved in some of the African countries such as Nigeria, Togo and Rwanda, which appeared as some of the world's top-10 improvers in doing business in the last three years. Also, it was noticed that economies such as Mauritius, Rwanda, Morocco, Kenya, Tunisia and South Africa, Zambia, Botswana and Togo are recording big reform wins. Specifically, Mauritius is a particular success story, rising five places to 20th. Mauritius'

rise in the ranking is linked to consistent reforms over the years: since 2005, the time needed to register property has dropped more than 12-fold while time needed for business incorporation has also dropped nearly 10 times[1]. For AfCFTA to deliver its objectives, Africa must leverage on recorded success in doing business to further improve on it.
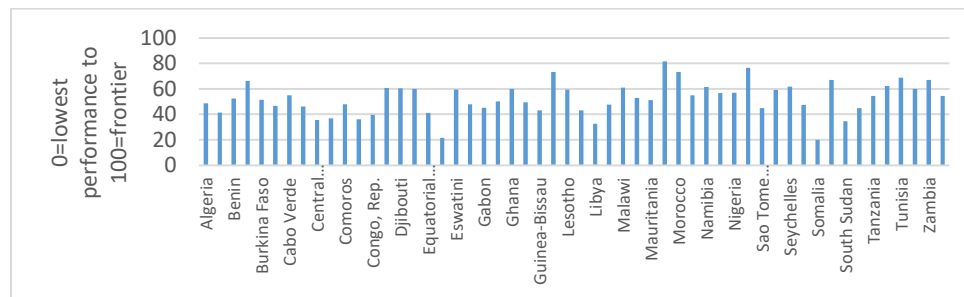

Figure 4. Doing Business across all African economies, 2019.
Source: World Bank's World Development Indicators.

The real GDP of African economies as presented in figure 5 shows that few countries, including Nigeria (the largest economy), South Africa, Egypt, Algeria, Morocco, and Angola, account for significant proportion of the continent's gross output. For instance, relative to the real GDP of Nigeria, South Africa, Egypt, Algeria, Morocco, and Angola is 89.7%, 63.0%, 42.3% and 26.2%, respectively (figure 6). Some African economies' real GDP such as Sao Tome and Principe, Seychelles and Liberia represents o.1%, 0.3%, and 0.5%, respectively of Nigeria's real GDP (figure 6). Hence, there is significant heterogeneity in the sizes of economies of Africa. In a typical trade gravity model, sizes of a pair of economies represent a force of attraction to trade. With significant noticed heterogeneity, AfCFTA when fully implemented may lead to exclusion of smaller countries from actively participating in trade, a situation in which only large economies will be trading with one another. These smaller economies may turn out to be parasitic in the scheme of trade.

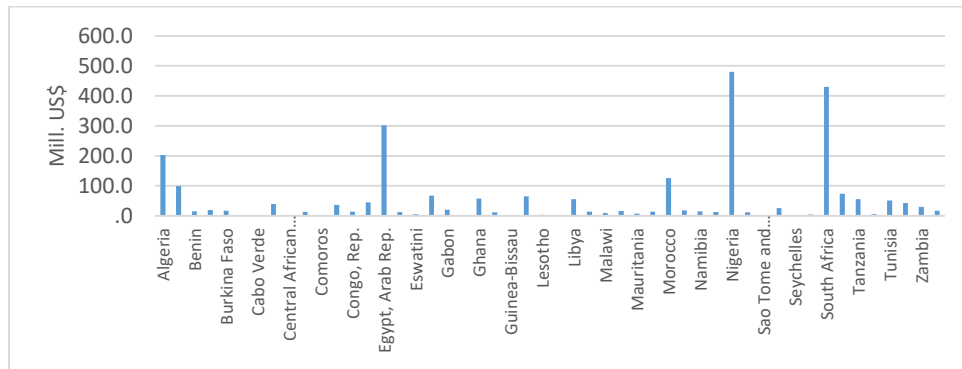[1] https://qz.com/africa/1445788/mauritus-rwanda-rank-high-on-world-bank-doing-business-report/

Figure 5. RGDP of African Countries, 2019.

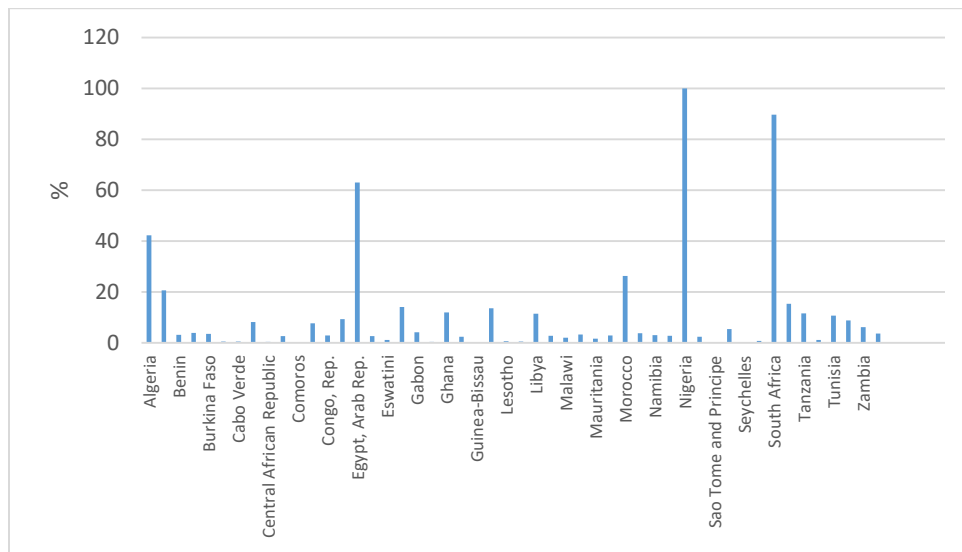*Source:* World Bank's World Development Indicators.

Figure 6. Size of Nigeria Relative to other African countries, 2019.

Source: World Bank's World Development Indicators.

Many of the African economies with very huge real GDPs are not the leading economies in terms of real income per head. For instance, Seychelles, Mauritius, Gabon, Equatorial Guinea, Botswana, and Namibia are some of the smaller economies in size but are leading in terms of real GDP per capita (figure 7). Only South Africa belongs to both groups. The implication of this

is that many of the economies with huge real GDPs are characterized with high population growth. This is a threat in the course of AfCFTA implementation. Since AfCFTA allows freedom of business movement of Africans, populations from poorer countries may move to relatively smaller rich economies thus compounding their socio-demographic and economic problems.
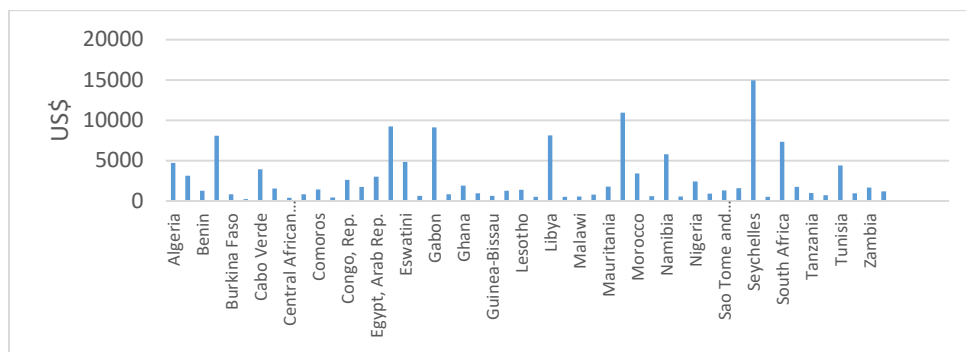

Figure 7. Real GDP per capita, 2019.

Source: World Bank's World Development Indicators.

The level of unemployment, income inequality and poverty among African economies is another potential threat to the successful implementation of AfCFTA. These features are also connected to cross-border movement of people. Unemployment is highest in South Africa, followed by Lesotho, and Swaziland (figure 8). Generally, unemployment is higher in many Southern and Northern African economies than in other regions. However, some African economies such as Niger, Burundi, Rwanda, Togo, and Uganda have very low level of unemployment. The distribution of unemployment across the African continent is a potential motivation for migration to countries with lower levels of unemployment when AfCFTA is fully implemented.
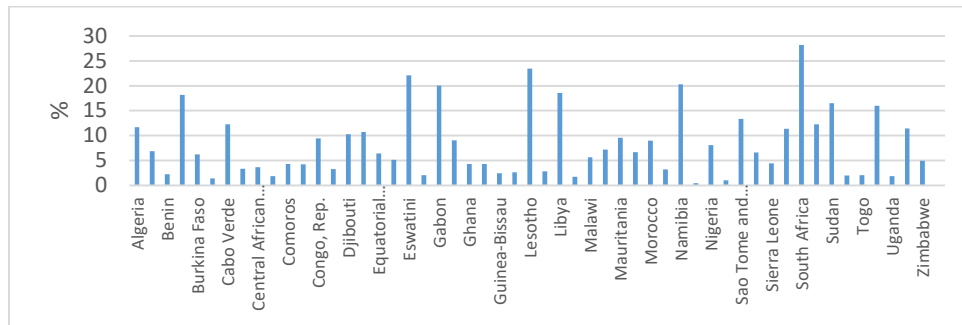
Figure 8. Unemployment Rate (ILO estimate), 2019.

Source: World Bank's World Development Indicators.

3. Literature Review

3.1 Theoretical review

Considerable research attention has been devoted to free trade agreements with several theories used in the trade literature to explain the effect of economic integration in free trade areas. Some of these theories include customs unions, common markets, monetary unions, monetary regionalism and economic unions (Dieter and Higgott, 2003; Salvatore, 2010; Hosny, 2013). However, because the generalizations of these theories principally overlap, we shall contemplate the two prominent views that we consider most appropriate for our study. These are the classical or static analysis, and the new economic theories of integration or the dynamic analysis of economic arrangements.[2]

3.1.1 *Classical/ Static Analysis*

The traditional views which are mostly considered as the first stage of economic integration are based on the free trade area agreements in the seminal book by Jakob Viner, *The Customs Union Issue* (1951), commonly referred to as the first study to identify concrete criteria that can be used to analyse the advantages and disadvantages of economic integration. His so

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[2] They have been considered as stages in the development of economic integration in some literature, for example in Marinov (2014).

called "static analysis" divided the possible effects of free trade into the popular trade creation and trade diversion. Trade creation implies a situation where trade shifts from a higher cost producer to a member country to a low cost supplier member state within members of a customs union. Trade diversion on the other hand occurs when imports are shifted from a low cost supplier of a third country to a high cost supplier member state within the union, as a result of the existence of a common customs tariff, which seeks to protect the higher cost producer members, within the union.

In an attempt to further explain the welfare impact of the static analysis on trade blocs, Viner pointed out that trade-creating agreements increase a country's welfare, while trade diversion reduces it. In other words, Viner argued that if trade creation is higher than trade diversion, then the members that participate in the signing of the free trade area agreement will experience increased welfare but if trade diversion is greater within the union, it will be followed by a reduction in the welfare of member countries.

This implies that while members of trade blocs can benefit from such agreements, the reverse is also true because of the idea that the trade-diverting effects of the customs union may outweigh their trade-creating effects, even if the resulting union tariff is lower relative to that of other countries that are not part of the union.

In a nutshell, Viner's theory basically stipulates that countries will only have incentives to integrate if integration is likely to produce more static gains than losses. In other words, free trade areas have the potential for trade creation more than trade diversion. Viner (1950) opined that negative welfare effects arise from trade diversion, which occurs when countries outside a free trade area offer a more competitively priced product than members within the free trade area. This disadvantage usually results in trade diversion, as some members have incentives to expand production at the expense of other less efficient members within the union. On the other hand, the welfare effect of trade creation is positive as the same internal tariffs stimulate greater competitiveness. Thus, countries that are proponents of economic integration are able to expand their share of the common markets, which leads to greater productive and allocative efficiencies (Dent, 2006).

3.1.2 *New Economic Integration Theories/ Dynamic Analysis*

For many years, following the work of Viner, trade creating agreements were seen as good, while trade diverting agreements were seen as bad for the economy of countries. However many other researchers have contributed to Viner's static analysis by considering various other aspects of the effects of economic integration beyond the trade creation and diversion approach. While the static analysis emphasizes that free trade is a more efficient way to achieve liberalization, this idea was challenged in the 60s on the basis of its inability to fully assess the impact of integration on welfare. In fact, Lawrence (1997) amongst other works has classified the static effects based on Viner's thesis as "old regionalism", and dynamic analysis as "new regionalism"[3] (Marinov, 2014).

According to Hasson (1962), "static analysis of trade division and trade creation is insufficient". This assertion was based on the works of Meade (1955) and Lipsey (1960) and others that found that preference considerations are also relevant in an attempt to explain how integration determines the welfare of member states. Gehrels (1956) argued that consideration of only the production effects of trade renders Viner's analysis as one that is biased and grossly underestimates the benefits of a free trade area amongst member states. This further fuelled the dissatisfaction with the static analysis, which resulted in a dichotomy that led to the development of newer approaches which yielded clearer conjectures.

Consequently, Lipsey (1960), in an attempt to shed some light on the implication of the static analysis, suggested that Viner assumed fixed consumption as a competent requirement for a trade-redirecting free trade area. Thus, he permitted a flexible situation of substitution in consumption and concluded that a customs union increases welfare when trade diversion is greater than trade creation. Similarly, Balassa (1961) and Cooper and Massell (1965) have introduced another tool (dynamic effects) into the analysis of the welfare effects of economic integration, as a more viable economic rationale

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[3] Other researchers call the two theories "first and second" regionalism.

behind the proliferation of economic integration schemes in general.[4] Their analysis added a new dimension to this area of study. Balassa's dynamic theory of economic integration proved that the static analysis in terms of trade creation and trade diversion is simply not enough to fully capture or analyse welfare gains from economic integration. Balassa (1961) listed the principle of dynamic effects of integration as large-scale economies, technological change, as well as the impact of integration on market structure and competition, productivity growth, risk and uncertainty, and investment activity. Schiff and Winters (1998) summarized the definition of dynamic effects of economic integration schemes as anything that affects the country's rate of economic growth over the medium term. This has been further divided into four other categories. These are the economies of scale, increased competition and efficiency, structural change and closer collaboration effects (Hosny, 2013).

By toeing the line of Balassa (1961) and Cooper and Massell (1965), newer approaches have also emerged which attempted to incorporate recent developments in the global economic conditions of countries into explaining the effects of economic integration. For instance, Bhagwati (1971) asserted that a fixed level of imports is a satisfactory condition for a reduction in the welfare of members. Similarly, Riezman (1979), Lipsey (1960), Kowalczyk (2000)[5] and others concluded that a certain degree of mutual trade before the formal establishment of an agreement is reached is a valid and reasonable requirement for members of a customs union to benefit from trade. Their analysis sought to explain the impact of trade in a free trade area based on both terms of trade and volume of trade as integration was achieved. Lawrence (1997) insisted that forces such as private sector participation, foreign direct investment, an increasing role of services, etc. influence integration agreements and the participation of member states propels members of a free trade area to reap the advantages of free trade deals. Other authors in agreement with Lawrence (1997) have listed these benefits to include increase of competition (Marinov, 2014) and economies of scope

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[4] They were the first to introduce the concept of dynamic effects to the research on economic integration.

[5] Kowalczyk (2000) offers a comprehensive critique of the static analysis and argues that the terms of trade and volume of trade approach is a better alternative.

Panusheff (2003). In the same vein, Baier and Bergstrand (2004) stated that the net welfare gain/loss of the two countries' trade agreement depends on three economic determinants, which are economic geographic factors[6], intra-industry trade determinants, and inter-industry trade determinants.

While dynamic effects have become a major discourse that offers a strong theoretical linkage between free trade and welfare of countries that are members of such negotiations, it is however not without demerits. One apparent drawback of dynamic analysis is that, unlike static analysis, there is no reliable method for quantitative assessment of dynamic effects, as they are derived from the peculiarities of today's free trade economy.

3.2   Empirical review

Empirical studies on evidence of the effects of free trade and trade flow on the economy document mixed results. On the whole, most researchers who focused on regional integration concluded that as goods and services flow across regions, members of these regions derive several benefits. Specifically, these studies suggest that economic integration and the regionalization impact the trade flow and volumes of countries through two main channels. The first is the scale and competition channel, while the second is the trade and location channel. The scale and competition channel emphasizes how the removal of barriers generates greater competition among the member economies and expands the market for producers of the member countries. The trade and location channel improves the productive efficiency of local producers and enhances the quality and quantity of the products available in the economy. However, these results can be broadly categorized into four major groups.[7] This section will briefly review this literature in relation to the objectives of this study.

The first group comprises authors who contend with the idea of free trade, regionalism and integration. These authors generally report trade diversion in their analysis and argue that free trade and integration largely constitute a

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[6] To him, trade creation is greater when two countries have less spatial distance

[7] This is based on Cooper (2006) who identified only three groups; however we have included the fourth, from the literatures reviewed for this study.

significant barrier to global trade liberalization. For instance, Baldwin and Venables (1995) concluded that regional integration agreements appear to generate negative spillovers for non-member countries. Soloaga and Alan (2001) found no evidence that economic integration aids intra-bloc trade; their study suggests that the EU and European Free Trade Association (EFTA) resulted in trade diversion. Clarete, Edmonds and Wallack (2003) undertook an analysis of the effects of free trade agreements on trade volume and flows in Asia and concluded that 9 out of 11 preferential trade agreements diverted trade. Similarly, Carrere (2006) assessed the impact of 7 different regional trade agreements and found that in general, these trade agreements reduced trade with the rest of the world, which suggests a strong evidence of trade diversion. Kahouli and Maktouf (2015) in their study, which evaluated the effects of free trade agreements on trade flows among Mediterranean countries, based on a sample of 27 countries from 1980-2011, found that trade creation will be achieved within the union, but such trade agreement would be to the detriment of non-members. The proliferation of free trade agreements has generated much criticism, due to the view that trade diversion will occur. Advocates of this school of thought such as Clausing (2001), Lee, Koo and Park (2008), and Vollrath, Gehlhar and Hallahan (2009) amongst others generally argue that since these agreements reduce trade barriers between the members, the expansion of bilateral trade between its members could be at the expense of other non-members.

The second category of researchers upholds and advocates for free trade and economic integration and insists that it facilitates global trade liberalization, as their works reveal that free trade agreements generally increased both trade within the trade area and the welfare of the economy of member states that signed the trade agreement. For example, Wacziarg (1999) asserted that trade openness policies provide an occasion for the trading nations to reap the expected benefits of increasing return to scale. However, the benefits of trade openness among the members of a customs union will be less than the trade openness at global level because the market size of a trade area in which a member country can supply its goods and services will be smaller than the size of the international market. Rosson, Runge, and Moulton (2000) opined that trade creation is more likely in a preferential trade agreement, especially when there are more member states within a larger

economic area, when the countries are competitive rather than complementary economies, and when the nations are in close proximity. Kandogan (2005) shows that the majority of Europe's liberalization agreements have been welfare-enhancing for all the states involved, in all sectors. Similarly, the findings of Baier and Bergstrand (2004) have provided satisfactory evidence that free trade agreements increase trade among member countries. Akram and Rashid (2016), in their study which focused on the European Union (EU), found that in most of the product groups considered, free trade agreements and economic integration promoted greater trade flows among member states. Although a slight evidence of diversion was found, the study reports that intra EU trade was also accentuated as a result of the 4th and 5th extension of the agreements in the trade bloc and even in non-member states. Similarly, Kaur and Sarin (2017) agreed that due to the relationship between India and Thailand as members of the ASEAN trade arrangements, coupled with the "Look East Policy" in place, the two countries have recorded exceptional bilateral gains from trade. Also, Ishola et al. (2020) accept that bilateral trade agreements in developing countries such as Nigeria, Thailand, Vietnam and Colombia, with trading partners such as China, India, United States and India respectively, have shown a positive effect on GDP per capita. They also suggest that trade volumes increased substantially, particularly after these countries entered into some form of bilateral agreement to engage in trade.

The third batch considered the impact of free trade and integration and concluded that it has a negative impact on labour in import sensitive sectors and on the environment. They show that large multinationals outsource jobs by shifting employment opportunities to countries with very low wages and to countries where environmental standards are either nonexistent or not enforced. Similarly, Honeck (2004) stated that 19 percent of job loss in the manufacturing sector of Ohio State was as a result of the North American Free Trade Agreement (NAFTA) induced increase in imports to Ohio. Kandogan (2005) also provides evidence to show that free trade has lead EU countries to experience massive unemployment, particularly in labour-intensive sectors, which has resulted in huge social welfare cost to the government.

The fourth group suggests that the effects of free trade are not the same across the board; they demonstrate that the impact varies from one trade bloc to another as the effects are largely determined by the timeline of the study, the commodities and the countries involved in the analysis. Accordingly, Akram and Rashid (2016) have shown that EU free trade agreements promote intra-block trade in the case of all commodity groups, however, for transportation equipment, machinery, minerals, fuels and lubricants, EU agreements divert trade to the rest of the world. Likewise, Lambert and McKoy (2009) focused on the agricultural sector to clarify the role of preferential trade associations on food and agricultural trade. Their findings suggest that while the signing of preferential trade agreements is beneficial as it increases the trade flows among member states, as well as with non-members, economic integration attempts of developing countries largely result in trade diversion. In the same vein, Magee (2004) submits that regional agreements can either be welfare-enhancing or welfare-reducing, the impact of free trade agreements depend predominantly on the country pairs that decide to sign trade deals, or form a trade bloc. As with many other issues in the economic integration debate, there are conflicting theoretical predictions about whether countries will tend to form regional trading blocs that raise welfare.

We now turn to studies in the Africa continent. Kwentua (2006) for South Africa and South African Customs Union (SACU) relations found that trade arrangements encourage and generate large volumes of trade among member countries, but surprisingly identified that the trade creation effects of SACU were negative, whereas the trade-diverting effects were positive. Turkson (2012) utilized the gravity model to assess whether trade preferences with the EU and sub-Saharan African trade has had a positive effect on African trade in a total of 48 sub-Saharan African countries and 25 EU countries from 1960-2006. The study affirms that trade agreements in the Economic Community of West African States (ECOWAS) and Southern African Development Community (SADC) have impressively increased bilateral trade, while there has been a reduction in bilateral trade in the Economic Community of Central African States (ECCAS) countries.

Ibale (2014) submits that the creation of the Common Market of Eastern and Southern Africa (COMESA) led to an increase in trade volume and trade

flows, which signifies trade creation among founding countries without causing trade diversion toward non-member countries. Specifically, Kenyan exports exhibited a downward trend in her trade figures before the formation of COMESA. However, the entry of new members into COMESA coincided with a significant increase in Kenya's exports toward them, while at the same time maintaining a steady export towards old member countries. However, Inancli and Addi (2019) present a somewhat contrary conclusion. Their study revealed that there was neither evidence of trade creation nor of trade diversion in the ECCAS region; they stated that beyond trade volumes, certain variables such as GDP, population, spatial distance, level of corruption and political stability are vital for the direction of trade flow in the region.

From the studies reviewed above, within this area of investigation, a number of studies clearly support, with ample evidence, the recent proliferation of free trade agreement that helps to achieve economic integration globally, especially within the African continent. Some of these authors include: Watcher (2005), Georges (2008), Lambert and McKoy (2009) and Waheeduzzaman (2017). In fact Waheeduzzaman (2017) argues that since economic integration processes positively improve income in the European Union (EU), North American Free Trade Agreement (NAFTA), Southern Common Market (MERCOSUR) and Association of Southeast Asian Nations (ASEAN), free trade is a good initiative, thus Brexit should not debilitate the future efforts of countries who desire to sign trade deals in the future.

3.3 Gaps in the literature

From the reviews presented above, it is clear that over the years, an enormous amount of research has been carried out in an attempt to explain the role of free trade agreements on the economies of various countries. However few of these studies have considered the subject from the perspective of developed economies. In other words, the dynamic and static analyses are not fully applicable to developing countries. This is corroborated by Marinov (2014) who suggests that the theoretical literature on economic integration discusses

custom unions the way it operates in industrialized countries, as such it may have little or no relevance to developing countries in Africa. Similarly, Ekpo (2020) argues that attempts to achieve integration in West African countries may be adversely affected by some unsettled yet very important issues which need to be addressed as the region moves further towards the African Continental Free Trade Agreement (AfCFTA). Some of these include infrastructural deficit, level of fiscal responsibility in the countries, and political coordination and commitment among member countries. Ekpo also notes that this lack of synergy coupled with divergent macroeconomic goals could rob African countries of the potential gains of free trade, even if all other provisos are adequately satisfied.

Most studies that extended this area of investigation failed to consider the issue of macroeconomic policy coordination, and the readiness of countries for trade agreements. While many authors have advocated for free trade and economic integration, very few have examined how countries have aligned their internal monetary mechanisms and exchange rate policies, which is a stronger condition that could promote sustainable and mutually beneficial trade, beyond the preferences that a customs union offers to members states.

Secondly, research on the effects of free trade agreements has relied primarily on a single commodity or sector, relative to the few that employed aggregates of trade volume data. It could be difficult to identify the real impact of trade agreements on the economy, and to also conduct a comparative analysis of sectors or commodities if only a single commodity is taken into account. Moreover, this may also have policy implications when the results arising from the analysis of a single product or service are used to arrive at a generalization for the trade relationship of a trading bloc, with several complimentary commodities.

Finally, few attempts have been made to investigate the role of services within regions that strive to implement economic integration policies. Existing research has focused on tangibles but has failed to explore the role of services trade amongst members of a customs union in Africa. Thus, within the field of intangible trade, a number of crucial questions remain unanswered.

3.4   Theoretical framework and methodology

3.4.1   *Theoretical framework*

The theoretical framework for this study is the partial equilibrium model based on SMART – a simulation tool included in the World Integrated Trade Solutions (WITS). The framework focuses on Nigeria as the importing market and it's exporting African partners, and assesses the impact of a tariff-change scenario.

The Model's Building Blocks

Export Supply

The export supply of a given commodity is assumed to be related to the export price. Hence, the degree of responsiveness of the export supply to changes in the export price is given by the export supply elasticity. If infinite export supply elasticity is assumed, that is, a perfect competitive situation which ensures a flat export supply curve, and the world price for each commodity is exogenously determined, the equation representing export supply can be stated as:

$$XS = f(\overline{Px}) \tag{1}$$

In other words, Nigeria is assumed to be a small open economy in many of the products it exports.

Import Demand Function: Armington Assumption

The behaviour of consumers is assumed to follow the Armington assumption, that is, goods from different regions are imperfect substitutes and consumers love variety. This provides an explanation why (seemingly identical) goods are not produced exclusively in the region with the lowest output price. For instance, goods (defined at the HS 6 digit level) imported from different countries, although similar, are imperfect substitutes—e.g., Portland cement from Nigeria is an imperfect substitute for Bamburi cement from Kenya.

With this assumption, the representative agent maximizes its welfare through a two-stage optimization process: first, he chooses the level of total spending/consumption on a composite good given a general price index. The relationship between changes in the price index and the impact on total spending is determined by a given import demand elasticity. He subsequently allocates the chosen level of spending among the different varieties of the good, depending on the relative price of each variety (say, choose more Portland cement from Nigeria, and less from Kenya). The extent of the between-variety allocative response to change in the relative price is determined by the Armington substitution elasticity.

Trade Effects

A change in trade policy (say AfCFTA) affects not only the price index/level of the composite good but also the relative prices of the different varieties. The export supply elasticity, the import demand elasticity, and the substitution elasticity will lead to changes in the chosen aggregate level of spending on that good and changes in the composition of the sourcing of that good, which affect the bilateral trade flows between two countries.

The total trade effects of liberalization are three: ***trade creation, trade diversion and price effect***. Trade creation is the direct increase in imports following a reduction in the tariff imposed on a commodity from a partner country. It entails a revenue effect which allows reaching a higher consumers' level of satisfaction. However, if the tariff reduction on a commodity from a partner African country is a preferential tariff reduction which does not apply to other extra-Africa trade flows, then imports of the commodity from a hypothetical African economy are further going to increase due to the substitution away from imports of the commodity from non-African countries that becomes relatively more expensive. This is regarded as trade diversion. Unlike trade creation, trade diversion is neutral because it does not affect the overall imported quantity but reallocates market shares among exporting partners based on the new relative prices. The increase in imports from tariff reduction beneficiaries is balanced by a decrease in imports from all others. Hence, from the market share perspective, the trade effect is only trade creation. However, for exporting countries, total trade effect is made of trade diversion and trade creation.

The price effect, also known as terms of trade effect, occurs only with a finite export supply elasticity assumption. It reflects the rise in world price for the good which demand increases following the tariff reduction. While trade creation and trade diversion effects depict the impact on quantity, the price effect represents the additional import value from increased world price.

Effects on Tariff Revenue, Consumer Surplus and Welfare

Trade liberalization implies tariff reduction or elimination. Hence, there is overall revenue loss for the government at constant import value, which corresponds to a transfer from the government to consumers and a tariff revenue gain through the increase in imports which enlarges the tax base. Tariff revenue change, in SMART, on a given import flow is assumed to be the final ad-valorem tariff multiplied by the final import value minus the initial ad-valorem tariff multiplied by the initial import value. Also, an increase in the varieties of goods that can be consumed following trade liberalization reduces the prices of these commodities leading to an increase in consumers' welfare. The reduction in prices hurts domestic producers leading to a production distortion loss.

3.4.1   Methodology

In order to assess the potential effect of the Africa Continental Free Trade Agreement (AfCFTA) on Nigeria's trade relations with other African member states, the WITS-SMART simulation model was employed. This approach has also been used by Othieno and Shinyekwa, (2011). In the WITS-SMART simulation, this study assumed a single phasing of liberalization for all products, except for products classified under the 35% tariff rate (sensitive products). Thus, sensitive products put under the 35% tariff rate were excluded from the analysis. The data selection was based on the Harmonized System six (HS-6) for classifying goods. The HS-6 comprises approximately 5,300 article/product descriptions that appear as headings and subheadings, arranged in 99 chapters, grouped in 21 sections. However, for the sake of simplicity, this study only focused on the top twenty (20) products that

contributed less revenue to the Nigeria trade relations with other African countries.

4.   Empirical Results and Discussion

Given the assumptions of the WITS-SMART simulation and its implementation, the results obtained are presented in table 4. It was observed that the AfCFTA enactment will generate a mixed effect. On the negative side, it will reduce Nigeria's revenue from trade. On the positive side, the agreement will increase Nigeria's trade relations with other African countries with a positive net welfare effect. Furthermore, the analysis revealed that the magnitude of the loss of revenue is independent of the relative share of the product in Nigeria's imports.

Specifically, the analysis presented in table 4 shows that Nigeria will lose revenue totalling US$0.57million, US$2.87million, US$1.75million and US$8.09million from the importation of sardines, mackerel, jack and horse mackerel and apples respectively after the implementation AfCFTA. It will however increase Nigeria's importation from African countries by US$0.48million, US$2.47million, US$1.37million and US$5.12million respectively and thus, increase intra-African trade as well as lead to welfare increases for these products (table 4). Furthermore, the analysis shows that revenue loss from coal stood at US$2.12million with a trade effect of US$1.70million and a welfare effect of US$0.42million. For paper and paperboard, revenue loss totalled US$1.87 with welfare effect of US$0.55million. The revenue loss from the implementation of the policy varies from one commodity to another. The loss of revenue suggests that Nigeria should be prepared for a decrease in revenue from import duties after the full implementation of the AfCFTA.

In addition, the results show that decreases in revenue are not highly correlated with both total trade effect and welfare effect. Although, a reduction in revenue is observed in this study, its proportion is relatively larger when compared with the total trade effect and welfare effect. This implies that the effect of the African Continental Free Trade Agreement on revenue gains should not be interpreted to have proportional effect on trade and welfare.

Table 4. Simulation: The result of AFCFTA on Trade, Revenue, and welfare effect

Product Code	Product Definition	Revenue Effect in 1000 USD	Total Trade Effect in 1000 USD	Welfare in 1000USD
30353	Sardines, sardinella, brisling or sprats.	-577.081	484.736	34.44
30354	Mackerel (*Scomber scombrus, Scomber australasicus, Scomber japonicus*) meat, frozen.	-2868.525	2468.058	230.779
30355	Jack and horse mackerel (Trachurus spp.) meat, frozen.	-1750.887	1373.104	114.943
80810	Apples	-8090.167	5119.936	524.017
90240	Other black tea (fermented) and other partly fermented tea, exceeding 3kg.	-754.139	852.821	22.272
210390	Sauces and preparations therefor; mixed condiments and mixed seasoning	-790.332	1050.626	200.447
250100	Salt (including table salt and denatured salt); pure sodium chloride whether or not in aqueous solution; sea water	-1705.338	1262.82	73.911
270119	Coal; (other than anthracite and bituminous), whether or not pulverized but not agglomerated	-2121.462	1706.555	42.664
330210	Odoriferous substances and mixtures; of a kind used in the food or drink industries	-2959.813	2523.657	112.878
381590	Reaction initiators, reaction accelerators and catalytic preparations, unsupported, n.e.c. or included	-1173.458	907.035	71.52
382490	prepared binders for foundry moulds or cores; chemical products and preparations of the chemical or allied industries (others)	-2782.739	2261.749	150.592
390210	Propylene, other olefin polymers; polypropylene in primary forms	-3558.917	3268.443	133.885
392350	Plastics; stoppers, lids, caps and other closures, for the conveyance or packing of goods	-841.872	428.041	74.549
481159	Paper and paperboard; coated, impregnated or covered with plastics (excluding adhesives), other than bleached and weighing more than 150g/m2, other than goods of heading no. 4803, 4809, or 4810	-1875.171	735.381	55.457
852871	Reception apparatus for television, with no video display/screen, Presented CKD	-2354.832	2084.229	221.374
852910	Reception and transmission apparatus; aerials and aerial reflectors of all kinds and parts suitable for use therewith	-579.158	149.963	29.27
870324	Vehicles; with only spark-ignition internal combustion reciprocating piston engine, cylinder capacity over 3000cc	-1180.519	1503.022	371.533
870600	Chassis; fitted with engines, for the motor vehicles of heading no. 8701 to 8705	-913.856	3427.127	314.054

Product Code	Product Definition	Revenue Effect in 1000 USD	Total Trade Effect in 1000 USD	Welfare in 1000USD
890110	Cruise ships, excursion boats and similar vessels, principally designed for the transport of persons, ferry boats of all kinds	-818.282	505.29	23.743
890310	Yachts and other vessels; for pleasure or sports, rowing boats and canoes, inflatable	-8019.744	7281.527	732.284

Source: Author computation based on underline result from WITS-SMART, using 2016 baseline stimulation data

Further, the country-by-country breakdown analysis of the commodity with the highest contribution of Nigeria's imports from Africa, which also coincides as the commodity that Nigeria will experience the highest loss of revenue for, is presented in table 5. The results in table 5 show the trade creation and trade diversion effect of the implementation of AfCFTA. Trade diversion occurs as a result of higher prices on importation from non-African countries while the prices are relatively cheaper within trading countries across Africa as a result of the free trade arrangement. On the other hand, trade creation takes place due to high demand for the product in African countries after the implementation of the liberalized tariff. The combined effect of trade creation and trade diversion leads to total trade effect. Table 5 indicates the imports from Nigeria's 15 top trading partners within the African region. Following the implementation of AfCFTA, there will be positive trade diversion in all major goods coming into Nigeria from Kenya, Cameroon, South Africa, Swaziland and Namibia with significant diversion of trade coming from Morocco.

Table 5. Analysis of the Impact of the Implementation of AfCFTA on Nigeria's Top 15 Trading Partners

Partner Name	Product Code	Product Definition	Trade Total Effect in 1000 USD	Trade Creation Effect in 1000 USD	Trade Diversion Effect in 1000 USD
Egypt	382490	Prepared binders for foundry moulds or cores; chemical products and preparations of the chemical or allied industries (Others)	-4.421	0	-4.421
Egypt	392350	Plastics; stoppers, lids, caps and other closures, for the conveyance or packing of goods	-76.308	0	-76.308

Partner Name	Product Code	Product Definition	Trade Total Effect in 1000 USD	Trade Creation Effect in 1000 USD	Trade Diversion Effect in 1000 USD
Egypt	210390	Sauces and preparations therefor; mixed condiments and mixed seasoning	-5.263	0	-5.263
Egypt	250100	Salt (including table salt and denatured salt); pure sodium chloride whether or not in aqueous solution; sea water	-48.617	0	-48.617
Côte d'Ivoire	210390	Sauces and preparations therefor; mixed condiments and mixed seasonings	-0.744	0	-0.744
Côte d'Ivoire	870324	Vehicles; with only spark-ignition internal combustion reciprocating piston engine, cylinder capacity over 3000cc	-0.327	0	-0.327
Kenya	90240	Other black tea (fermented) and other partly fermented tea, exceeding 3kg.	906.313	852.767	53.546
Kenya	392350	Plastics; stoppers, lids, caps and other closures, for the conveyance or packing of goods	966.186	366.597	599.589
Kenya	481159	Paper and paperboard; coated, impregnated or covered with plastics (excluding adhesives), other than bleached and weighing more than 150g/m2, other than goods of heading no. 4803, 4809, or 4810	313.455	107.28	206.175
Kenya	852910	Reception and transmission apparatus; aerials and aerial reflectors of all kinds and parts suitable for use therewith	225.039	47.13	177.909
Senegal	30354	Mackerel (*Scomber scombrus, Scomber australasicus, Scomber japonicus*) meat, frozen	-3.011	0	-3.011
Senegal	210390	Sauces and preparations therefor; mixed condiments and mixed seasonings	-0.005	0	-0.005
Tunisia	382490	Prepared binders for foundry moulds or cores; chemical products and preparations of the chemical or allied industries (Others)	-5.311	0	-5.311
Ghana	392350	Plastics; stoppers, lids, caps and other closures, for the conveyance or packing of goods	-0.133	0	-0.133
Ghana	870600	Chassis; fitted with engines, for the motor vehicles of heading no. 8701 to 8705	-0.466	0	-0.466
Cameroon	210390	Sauces and preparations therefor; mixed condiments and mixed seasonings	0.709	0.409	0.3

Partner Name	Product Code	Product Definition	Trade Total Effect in 1000 USD	Trade Creation Effect in 1000 USD	Trade Diversion Effect in 1000 USD
South Africa	852910	Reception and transmission apparatus; aerials and aerial reflectors of all kinds and parts suitable for use therewith	481.646	101.316	380.33
South Africa	30354	Mackerel (*Scomber scombrus, Scomber australasicus, Scomber japonicus*) meat, frozen	453.738	198.21	255.527
South Africa	80810	Apples	5310.181	4944.569	365.611
South Africa	90240	Other black tea (fermented) and other partly fermented tea, exceeding 3kg.	0.057	0.053	0.004
South Africa	210390	Sauces and preparations therefor; mixed condiments and mixed seasonings	1802.598	1050.217	752.381
South Africa	250100	Salt (including table salt and denatured salt); pure sodium chloride whether or not in aqueous solution; sea water	7.989	3.718	4.271
South Africa	270119	Coal; (other than anthracite and bituminous), whether or not pulverized but not agglomerated	1706.548	1706.548	0
South Africa	870324	Vehicles; with only spark-ignition internal combustion reciprocating piston engine, cylinder capacity over 3000cc	2522.32	1503.023	1019.297
South Africa	870600	Chassis; fitted with engines, for the motor vehicles of heading no. 8701 to 8705	4414.732	3427.127	987.606
South Africa	890110	Cruise ships, excursion boats and similar vessels, principally designed for the transport of persons, ferry boats of all kinds	1484.272	505.289	978.983
South Africa	890310	Yachts and other vessels; for pleasure or sports, rowing boats and canoes, inflatable	7366.033	7281.527	84.506
South Africa	330210	Odoriferous substances and mixtures; of a kind used in the food or drink industries	434.282	186.577	247.706
South Africa	381590	Reaction initiators, reaction accelerators and catalytic preparations, unsupported, n.e.c. or included	1839.327	901.013	938.314
South Africa	382490	Prepared binders for foundry moulds or cores; Chemical products and preparations of the chemical or Allied industries (Others)	66.787	36.524	30.263
South Africa	390210	Propylene, other olefin polymers; polypropylene in primary forms	6491.131	3266.034	3225.097

Partner Name	Product Code	Product Definition	Trade Total Effect in 1000 USD	Trade Creation Effect in 1000 USD	Trade Diversion Effect in 1000 USD
South Africa	392350	Plastics; stoppers, lids, caps and other closures, for the conveyance or packing of goods	167.998	61.444	106.554
South Africa	481159	Paper and paperboard; coated, impregnated or covered with plastics (excluding adhesives), other than bleached and weighing more than 150g/m2, other than goods of heading no. 4803, 4809, or 4810	1754.94	628.102	1126.838
Swaziland	330210	Odoriferous substances and mixtures; of a kind used in the food or drink industries	5380.113	2337.08	3043.033
Swaziland	381590	Reaction initiators, reaction accelerators and catalytic preparations, unsupported, n.e.c. or included	12.834	6.022	6.812
Swaziland	382490	Prepared binders for foundry moulds or cores; chemical products and preparations of the chemical or allied industries (Others)	3879.151	2224.366	1654.785
Morocco	30353	Sardines, sardinella, brisling or sprats.	-186.202	0	-186.202
Morocco	30354	Mackerel (*Scomber scombrus, Scomber australasicus, Scomber japonicus*) meat, frozen	-28.359	0	-28.359
Morocco	30355	Jack and horse mackerel (*Trachurus* spp.) meat, frozen.	-32.828	0	-32.828
Morocco	80810	Apples	-1.987	0	-1.987
Morocco	210390	Sauces and preparations therefor; mixed condiments and mixed seasonings	-3.617	0	-3.617
Namibia	250100	Salt (including table salt and denatured salt); pure sodium chloride whether or not in aqueous solution; sea water	2608.877	1259.102	1349.775

Source: Author computation based on underline result from WITS-SMART, using 2016 baseline stimulation data

5.   Summary and Policy Lessons

This study investigated the potential effect of the AfCFTA agreement on the Nigerian economy using the WITS-SMART simulation. Based on 2016 baseline simulated data, the results show that the AfCFTA will have a mixed outcome for Nigeria. The government will lose tariff revenue in all the intra-

African major commodity imports. For instance, its total revenue loss will be US$0.57million, US$2.87million, US$1.75million and US$8.09million from the importation of sardines, mackerel, jack and horse mackerel and apples respectively. The revenue loss follows the volume of each commodity import. However, there are positive trade and welfare effects. Totalling the revenue loss, welfare gain and trade effect in the 20 leading commodities used for simulation shows a net loss of about $2.8 million annually. This shows that the tariff revenue loss from the AfCFTA implementation will outweigh the welfare gain and total trade increase gain. However, there are variations across Nigeria's major trading partners within the continent. The net total trade creation gains liberalizing with Swaziland, Kenya, Cameroon, Namibia and South Africa are positive, while they are negative for Côte d'Ivoire, Senegal, Ghana and Morocco in the major commodities Nigeria imports from these economies. This implies that Nigeria may be diverting its trade significantly away from its West African neighbours when the AfCFTA is fully implemented.

In terms of policy, there is a need for Nigeria to be forward looking and proactive in alternative means of compensating for tariff income that will be lost due to implementation of AfCFTA. Also, one of the ways of minimizing the loss in tariff revenue (and increase the overall gain) as increase imports surge from other African countries is to enlarge the domestic tax base. It is equally important for Nigeria to increase domestic production of the imported goods to adequately compete with those coming from other African countries, especially those that the nations have some comparative advantage in producing. This can be done by improving on doing business and developing incentives for local manufacturers of these commodities. Although this will have no direct effect on government tariff revenue, nevertheless, it can indirectly minimize revenue loss through other indirect domestic commodity taxes on consumption of these commodities.

There is also a need to work out compensation mechanisms for the domestic manufacturers who will face severe import competition when Nigeria opens up to other African economies. Most of this competition will come from commodities with higher government tariff revenue loss and countries with the greatest trade creation with Nigeria.

Finally, Nigeria can also propose a phased liberalization for certain commodities with the greatest tariff revenue loss to buy some time for government to make necessary fiscal adjustments and domestic producers to adjust to the domestic need for these commodities.

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