THE
NIGERIAN
ECONOMIC
SUMMIT
GROUP

December 2019

Technical
Report

Impact Assessment Study and Economy-Wide Implications of the African Continental Free Trade Area (AfCFTA) on the Nigerian Economy

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Executive Summary

The African Continental Free Trade Area (AfCFTA) represents one of the most ambitious attempts of the African Union Heads of States and Governments to economically unite African peoples and economies. It also represents a bold attempt by the African Union Heads of States and Governments to provide or at the least, experiment with an "African solution" to "an African" problem. The AfCFTA is the first step in the implementation of African Union (AU) Agenda 2063: the "Vision" for an integrated, prosperous and peaceful Africa. The proponents of the Continental Free Trade Area project, who interestingly are in the majority, are deeply convinced of the potential of the AfCFTA to broaden and strengthen the scope for intra-African trade as well as improve the well-being of African people. The antagonists of the drive towards the establishment of a continental free trade area in Africa, unfortunately, do not agree with the proponents. The antagonists believe the AfCFTA will be damaging to participating countries' economies. This group specifically argues that the AfCFTA will severely decrease government revenue, thereby worsen the fiscal stance of many African countries. They also argue that it will exacerbate firm losses and that the exposure of domestic firms to foreign competition will reduce demand and profitability, which in turn will have an adverse effect on productivity.

Given the huge market potential in Africa, there is a tremendous possibility that AfCFTA will become an African success story. However, the amount of success that is achievable in this "African Project" will depend to a large extent on the quality of preparation that is infused to the negotiation and implementation of the AfCFTA agreement by African countries. Although Nigeria signed the AfCFTA framework agreement in July 2019, the initial reluctance of the Nigerian Government to sign the agreement was borne out of the concern of different segments of the Nigerian economy regarding the possible harmful consequences of joining the AfCFTA. There is the underlying fear among policymakers in Nigeria that AfCFTA could easily be transformed from a free trade area into a free transfer of resources arrangement from one economy to the other.

It is against this background that the Nigerian Economic Summit Group (NESG) commissioned the Centre for Petroleum Energy Economics and Law (CPEEL) at the University of Ibadan, Ibadan in conjunction with Equilibria Consult, to conduct an evidence-based study that has the overarching objective of assessing the potential impact of AfCFTA on the Nigerian economy.

The NESG commissioned study is specifically aimed at determining the potential impact of the AfCFTA on key macroeconomic variables such as aggregate output, aggregate export, aggregate import, government revenue, investment, and composite prices. In addition, the study also aims specifically at determining if government intervention, by way of an increase in its infrastructure spending will help improve any potential gains or minimize losses associated with AfCFTA implementation. Besides, the objective also includes; quantifying the welfare impacts of the AfCFTA on Nigerian households; ascertaining which sectors would gain/lose as well as factors reallocations resulting from the free trade agreement.

The study adopts the Computable General Equilibrium (CGE) methodology to achieve its objectives. The analysis was done under six policy simulation scenarios including – linear cut in tariff over the ten-year AfCFTA implementation period; front-loading tariff liberalization, back-loading tariff liberalization, linear cuts in tariff combined with 10 percent of locally produced substitutes categorized as sensitive goods and protected from liberalization, linear cuts in tariff combined with 10 percent exogenous increase in government investment; linear cut in tariff combined with 5 percent increase in labour supply and 5 percent increase in foreign capital inflow.

The study has some interesting findings with wide-ranging implications for the Nigerian economy. For instance, the results indicate that the AfCFTA will be trade-diverting as Nigeria's imports from non-African countries will be substituted by imports from African countries. Government revenue will decline in all but one of the scenarios of the AfCFTA when foreign investment inflow and increased labour supply is assumed. Government revenue declined by 0.21 percent when

linear cut to the tariff is applied and when the tariff cut is back-loaded. The decline in government revenue is only marginally lower (0.20%) when the tariff cut is front-loaded. However, during the first period of five years, when the government is assumed to increase its investment by 10 percent, government revenue increased by 0.42 percent before declining by 0.13 percent. The losses in government revenue are more likely to have resulted from the decrease in tariff revenue – as taxes on imports constitutes a major source of government non-oil revenue. It was noted, however, that government revenue was positive in both the first and second period of the AfCFTA implementation when foreign investment inflow and an increase in labour supply was assumed.

The African Continental Free Trade Area implementation in Nigeria is expected to create the phenomenon of trade-diversion and this will be more prominent in Nigeria's imports from West African countries and South Africa. Investment is expected to decline in all simulations. The decline in investment is lowest when considerations are made for sensitive products during the implementation of the AfCFTA. With the exclusion of sensitive products (SIM 3), the total investment is expected to decline by -0.15 percent compared with -0.16 percent when there are no considerations for the exclusive list.

The implementation of the AfCFTA has positive impacts on Nigeria's exports. If linear cuts are applied to tariff elimination, aggregate export will increase by 0.02 percent in both the first and second five-year implementation periods respectively. If the tariff elimination is back-loaded, aggregate export is expected to increase by 0.01 percent and 0.03 percent in the first and second implementation periods respectively. Even when tariff elimination is front-loaded, aggregate export will still increase by 0.02 percent in both the first and second five-year implementation periods respectively. When sensitive products are protected from tariff cuts, aggregate export will also increase by 0.02 percent in both the first and second five-year implementation periods respectively.

The simulation results indicate that the AfCFTA tariff liberalization will cause a negligible decline in the household's income. The decline in household's income will be more severe for rural-rich households and urban-rich households. The poor households in both urban and rural households will only experience a marginal decrease in income (averaging about 0.01 percent for both rural and urban poor households). The expected decrease in income of rural and urban rich households will be an average of about 0.02 percent for each household type. However, when government intervention and inflow of foreign investment, as well as the increase in labour supply, are simulated, the tide of negative household income changes is reversed. The above results strongly suggest the existence of opportunities and potential risks associated with the AfCFTA agreement. The results also informed some key policy recommendations that include the following:

- **In view of the findings that Nigeria's GDP will be negatively impacted when the AfCFTA agreement comes into force, and in view of the need to make the economy more competitive; it was recognized that relying on the inflow of foreign saving to grow the economy may not readily pay-off.** The study, therefore, recommends that the country should embark on massive infrastructure upgrade and institutional reforms to improve her business environment. The infrastructure upgrade could be realized through the concession of major infrastructural projects (electricity, roads, bridges, airports, seaports, etc.) to the private sector. The concessions must, however, be complemented by strong institutional reforms to effectively regulate the operations of the private sector.

- **Producing highly competitive products in the foreign market also require strengthening government regulations and internal quality control of products produced in the country.** The Standards Organization of Nigeria (SON) and the Nigerian Agency for Food and Drug Administration and Control (NAFDAC) have a crucial role to play in this respect. These regulatory institutions must be reformed to effectively perform their constitutional regulatory functions.

- **Nigeria needs to maximize the opportunities that are available to it in the AfCFTA**

agreement by enhancing the space for both domestic and foreign investments. Thus, there is the need to create a more business-friendly environment and reduce existing binding trade constraints in the country that has so far deterred the growth of foreign investment in different sectors of the economy. In addition to providing a reliable transportation system and power supply, the country can restore a business-friendly environment by substantially addressing all major security challenges that have in recent time inundated the country and discouraged foreign investors from doing business in Nigeria.

• **There is a need for measures to counter the expected negative impact of AfCFTA on government revenue.** The recommended policy measure here is to combine trade liberalization with increased drive for the inflow of foreign saving/investment into the Nigerian economy. The government can complement this with a programme of diversification of the Nigerian economy. If successfully pursued, diversification of the Nigerian economy will, in turn, boost the tax revenue base of the Nigerian Government.

• **The Government may begin to undertake deliberate measures that will strengthen sectors including health, education, electricity, transportation, textile, apparel and footwear to maximize the benefits that are likely to accrue to them when the AfCFTA agreement comes into force.** This can be done by recognizing these sectors as AfCFTA priority sectors for immediate government support. The government support may include tax breaks/rebate, government-backed preferential loan arrangements from commercial banks, etc. For sectors that are expected to suffer the greatest losses (including the chemical, chemical products and electrical; wood and wood products; cement and construction sectors), Government needs to create safeguards or incentives for such sectors. These incentives could come in the form of including the sectors in the sensitive list. This will help delay liberalization of these sectors to a later period and allow for the adjustment of the sectors to realities of the AfCFTA agreement.

• **Implementation of the AfCFTA is also expected to trigger a surge in imports across sectors of the Nigerian economy.** The major concern here is the issue of dumping. Strict enforcement of the Rules of Origin (RoO) should be enshrined as is, in AfCFTA framework document. The relatively large market size of Nigeria makes the economy a target for dumping. To protect the economy from the dumping of inferior and substandard products, the RoO needs to be well strengthened and tightened. This may require the country using the five-year transitional period to negotiate and adjust within the economy. There is also a need to negotiate an effective dispute resolution mechanism that allows for sanctioning of erring parties within the AfCFTA. This mechanism may include a trade court solely for trade dispute resolution within the region.

Overall, one thing that is certain is that AfCFTA would turn out in one of two outcomes; a win-win outcome for all African countries, or a zero-sum game in which case the gain of one country becomes the loss of another, or the loss of one country becomes the gain of another.

1. Project Background and Context

In response to the urgent need to reposition the African continent for improved intra-African trade as well as trade with the rest of the world, the African Union (AU) Assembly of Heads of State and Heads of Government adopted a decision to establish the African Continental Free Trade Area (AfCFTA) in 2012. The trade agreement is a negotiated rules-based system, to establish the rule of law in trade, accelerate regional integration, deepen and expand intra-Africa trade from its very low base which the United Nations Conference on Trade and Development (UNCTAD, 2017) estimates at about 18 percent. The deal aims to establish a single continental market for goods and services, allowing the free movement of business people and investments across Africa. It is expected that 55 African countries and territories with a population of over one billion people and a combined Gross Domestic Product (GDP) of about US$3.4 trillion would be integrated into an African single market.

The framework agreement for the establishment of the AfCFTA was endorsed by 44 African countries in Kigali, Rwanda on 21 March, 2018. On July 8, 2019, Nigeria signed up to the AfCFTA framework Agreement. The AfCFTA is expected to enter into force thirty days after 22 instruments of ratifications are deposited with the African Union Commission (AUC) Chairperson.

The main objectives of the AfCFTA are to:

1. Create a single continental market for goods and services, with free movement of business persons and investments, and thus pave the way for accelerating the establishment of the Continental Customs Union and the African Customs Union;

2. Expand intra-African trade through better harmonization and coordination of trade liberalization and facilitation regimes and instruments across RECs and across Africa in general;

3. Resolve the challenges of multiple and overlapping memberships and expedite the regional and continental integration processes; and,

4. Enhance competitiveness at the industry and enterprise level through exploiting opportunities for scale production, continental market access and better reallocation of resources.

Some free trade enthusiasts have argued that the AfCFTA will have immense economic and social benefits for the African region. The expected benefits include better market access, aligned trade regimes, job creation and increased investment. Moreover, it will establish rules-based trade governance in intra-African trade to invoke trade remedies, such as safeguards, anti-dumping, and countervailing duties against unfair trade practices, including dumping, trans-shipment of concealed origin of products.

On the contrary, there is a general concern among sceptics that Nigeria's membership of the AfCFTA will expose all sectors of the economy, especially the secondary and tertiary sectors to intense competition from better-positioned enterprises from other African countries. There is also the fear of significant tariff revenue losses and possible uneven distribution of other costs and benefits as a result of the trade agreement. These fears define two prominent challenges ahead for the AfCFTA (Kituyi, 2016).

There is no doubt that significant challenges lie ahead of the AFCFTA arrangement, but also true is that the trade agreement offers enormous opportunities for economic progress and prosperity for African countries. The benefits accruable to each participating country will to a large extent, be determined by how swiftly member countries address existing binding constraints that hinder efficiency in their production systems.

For Nigeria, the central question remains what the nation-wide implications of the AfCFTA would be on the Nigerian economy, especially given the country's weak non-oil export capacities, infrastructure deficits and a host of other trade-related shortcomings.

Presumably, the Government desires further guidance from credible empirical evidence to make optimal decisions given the probable implications of the trade agreement. Such empirical evidence is expected to present the Government with facts on the potential benefits or losses of the agreement on the economy. It will also provide a basis for further negotiation given that Nigeria is the largest and most populous economy in Africa. This justifies the need for a rigorous evidence-based economic analysis of the potential impact of the AfCFTA agreements on the Nigerian economy.

It is against this backdrop that the Nigerian Economic Summit Group (NESG) mandated the Centre for Petroleum, Energy Economics and Law (CPEEL) in collaboration with Equilibria Consults to develop a CGE model (NESG GEMOD) that will be used to conduct an independent Impact Assessment Study of the implication of AfCFTA on the Nigerian Economy. The model is expected to be flexible enough for the Institution to use in other policy-related studies.

2.   Objectives of the Study

The central objective of the study is to develop a Nigeria-based CGE model (NESG GEMOD) to analyse the economy-wide implications of the AfCFTA on the Nigerian economy. The specific objectives of the study are to:

• determine the magnitudes and direction of impacts on key macroeconomic variables;

• assess the impacts on government revenue and implications on government fiscal stance;

• ascertain which sectors would gain/lose as well as factors reallocations resulting from the trade agreement;

• quantify welfare impacts on Nigerian households; and

• determine if government intervention, by way of an increase in its infrastructure spending will help improve any potential gains or minimize losses associated with AfCFTA implementation.

Objectives (i) to (iv) will rely on the use of the CGE model. To quantify welfare, we rely on the consumption-based theory of welfare to explain the household effects of the tariff policy change. In microeconomics or household level analysis, welfare is dependent on the consumption of goods. As pointed out by Cutler and Katz (1992), consumption is a theoretically more satisfactory measure of well-being rather than income because of households "smooth" consumption in response to income fluctuations. Recommendations for the policy will be based on the outcome of the results as well as further simulations implemented in order to gauge the reliability of some of the proposed policy recommendations.

3. An Overview of the Nigerian Economy and Existing Regional Trade Agreements in Nigeria

3.1 Macroeconomic Context

Nigeria, with a GDP of $404.65 billion, is Africa's largest economy. A key player in West Africa and Sub-Saharan Africa (SSA) with a population of about 201 million, Nigeria accounts for about 47 percent of West Africa's population and one of the largest populations of youth in the world. These mean that Nigeria offers a sizable consumer market, with significant opportunities in various sectors.

Between 2006 and 2016, Nigeria's Gross Domestic Product (GDP) grew at an average rate of 5.7 percent per year. Growth was as high as 8 percent in 2006 but dropped to a low of -1.5 percent in 2016 due to the collapse in oil price in mid-2014. Although Nigeria's economy performed much better in the recent episode of boom-bust oil-price cycles than it did during the previous periods, such as in the late 1970s or mid-1980s, oil prices continue to influence the country's growth pattern.

With the onset of the recent oil price shock, which led to the economic recession in the second quarter of 2016, the government was faced with the pivotal challenge of restoring economic growth, through building policy frameworks and institutions capable of managing the volatility of the oil sector and supporting the growth of the non-oil economy. This culminated in the development of a set of macroeconomic and structural reform priorities articulated in the country's Economic Recovery and Growth Plan (ERGP 2017-2020). While the implementation of the strategic reform priorities of the ERGP helped to strengthen institutions, improve expenditure management and plug revenue leakages, the country' emergence from recession in 2017, with a growth rate of 0.8 percent, was mainly driven by the oil sector – improvements in global crude oil market conditions and stable domestic oil production. This was in spite of the fact that the oil sector commands only a small fraction of Nigeria's GDP.

Fig. 1. Real GDP Growth (%)
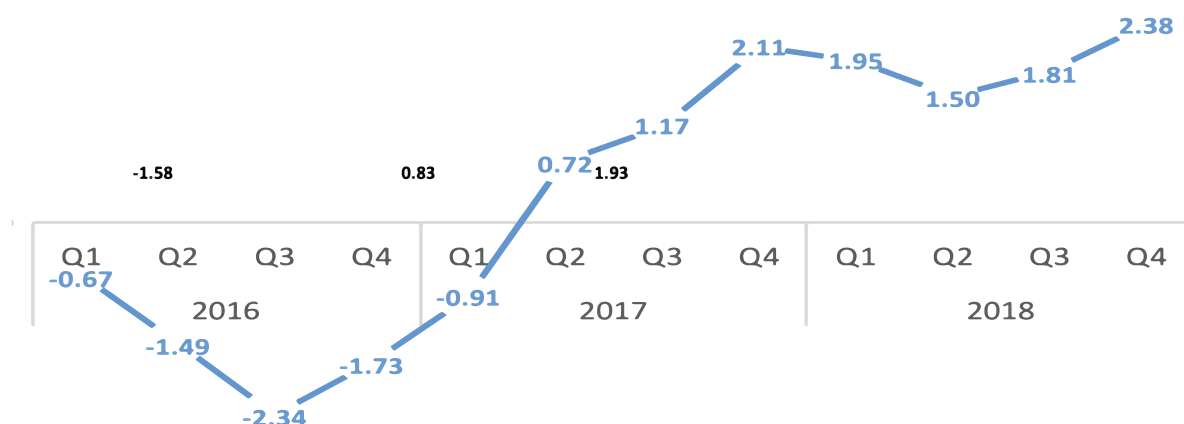
Source: National Bureau of Statistics (NBS)

The country witnessed significant increases in general prices (Fig. 2.) due to fuel supply shortages in the first quarter of 2016, challenges in the power sector, and foreign exchange supply scarcity as well as other supply constraints in the agricultural sector. The tightening of the economy due to these factors resulted in a surge in domestic inflation to a peak of 18.7 percent in January 2017 from 9.6 percent in January 2016. Following the uptick in oil prices and the gradual recovery of the economy, inflation has been trending downwards since its peak – settling around 11 percent over twelve consecutive months from May 2018.

Fig. 2. Nigeria's Inflation Rate (%)
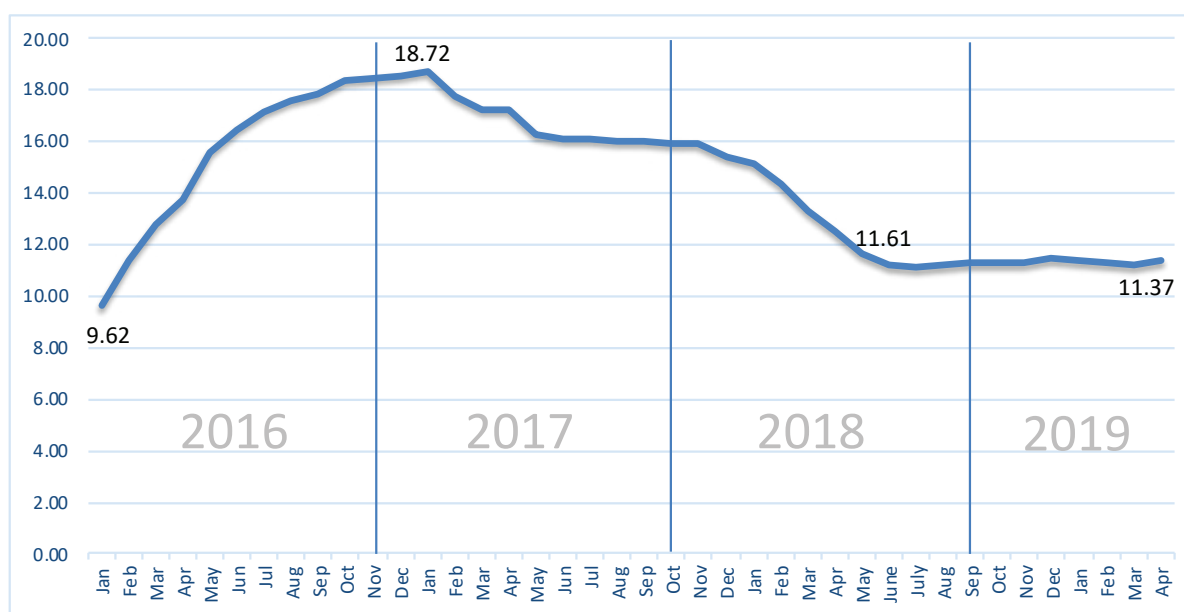
Source: National Bureau of Statistics (NBS)

The volatility of oil prices continues to manifest itself on Nigeria's fiscal outturns, foreign reserve position as crude oil export remains the country's main revenue and foreign exchange (forex) earner. Until recently, oil revenue constituted a major part of Government revenue. Following the collapse in oil price in mid-2014, the share of oil has grown less significant - it averaged 48 percent between 2016 and 2018, while the share of non-oil tax revenue was 52 percent, on average, in the same period. Of the three categories of non-oil taxes (consumption tax, company income tax, and trade tax), trade taxes had the least share (about 23 percent on average, between 2016 and 2018). When measured relative to total revenue, trade taxes contribute only about 12 percent on the average. The implication is that changes in trade policies generate some fiscal loss to the government.

Fig. 3. Oil & Non-Tax Revenue (N Billion)   **Fig. 4.** Share of Trade Tax in Non-Tax Revenue(%)
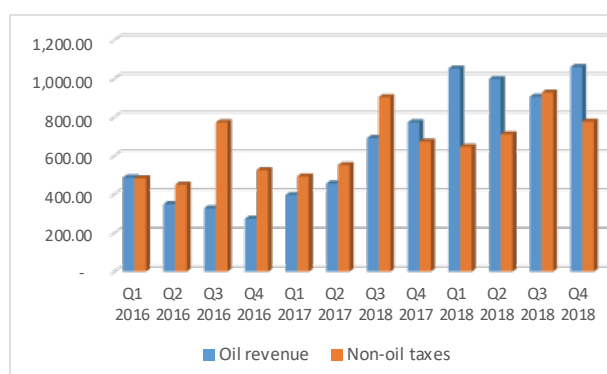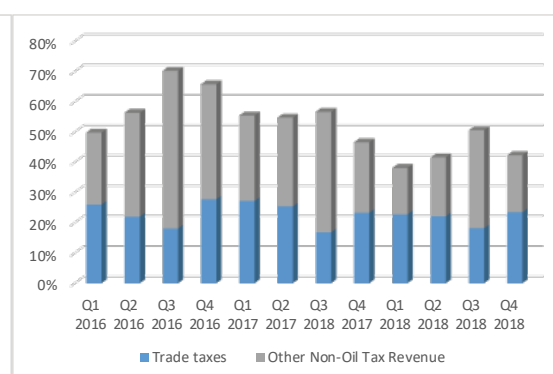
Source: Office of the Accountant General of the Federation (OAGF)

Up to 95 percent of the country's forex is derived from crude oil export. Consequently, external reserves fell to US$24.5 in September 2016 from US$48.7 billion pre-oil-burst period (Figure. 5). The decline in foreign reserves exacerbated pressures on the exchange rate. As of January 29, 2016, the official trading rate for the Naira against the U.S. Dollar was N196*/N197** . It was devalued to N290/$ and then to N305.35*/N306.35 in May 13, 2016 and August 17, 2016 respectively. On the other hand, at the parallel market, the Naira traded against the Dollar at the rate of 493*/496** in January 2017 but appreciated to 380*/387** on April 21, 2017 after

peaking at N520 in February 2017. Thus, the currency depreciated by approximately 55.6percent at the official rate. Efforts to maintain a stable and competitive exchange rate by the Central Bank combined with a sustained increase in the price of crude oil have resulted in an average official Naira/US$ exchange rate of N305 and N306 in 2018 and 2019 respectively, while the interbank rate has converged at an average of about N360/$ in line with the parallel markets (Fig. 6).

Fig. 5. Foreign Reserves ($ Billion)   **Fig. 6.** Exchange Rates (N/$)
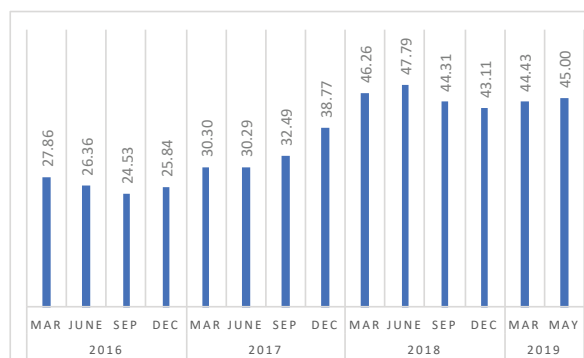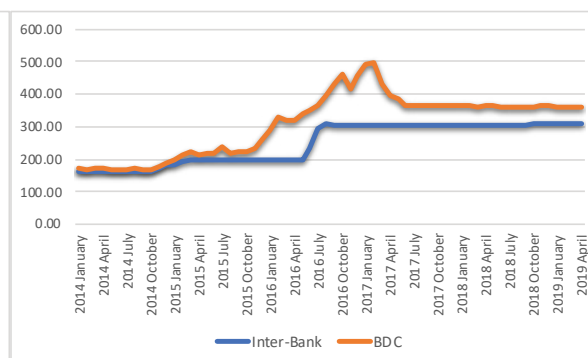
Source: Central Bank of Nigeria

Despite the gradual improvements in general macroeconomic conditions, the Government faces the challenge of significant budget deficits, which is undermining private sector investments and the country's growth prospects. Poor revenue performance due to the inadequate tax base and low tax compliance combined with high recurrent expenditure burden has led to large fiscal deficits and mounting public debt stock. The fiscal deficit as a percent of GDP was 2.37 percent in 2016, 3.34 percent in 2017 and 2.33 percent in 2018. With the exception of 2017, the deficit-GDP ratio was within the 3 percent threshold stipulated in the Fiscal Responsibility Act (FRA, 2007); however, the growing size of public debt amidst low revenue profile, increasing interest payments and huge infrastructure deficit is becoming a concern.[1]

3.2   Sectoral Performance

The non-oil sector continues to remain the major contributor to growth in the Nigerian economy, with the services sector taking the lead. In 2018, the non-oil sector's contribution to the economy was 91.4 percent of which service sector contribution was 52.6 percent. Key performing activities include Transport, Information & Communication, Electricity, Water, as well as Arts & Entertainment. While agriculture's share of GDP was 25.15 percent, activities in the sector have been significantly undermined by conflicts between farmers and herders, as well as weather events. Non-oil, non-agricultural growth, which remained negative up to the third quarter of 2017 strengthened through 2018.

[1]Nigeria's tax to GDP ratio is about 6 percent while interest payments was about 54 percent of FGN revenues. It is estimated that the country needs to spend $3 trillion on economic infrastructure over the next 30 years, for it to bridge its infrastructure deficit.

Fig. 7. Sectoral Performance (%)
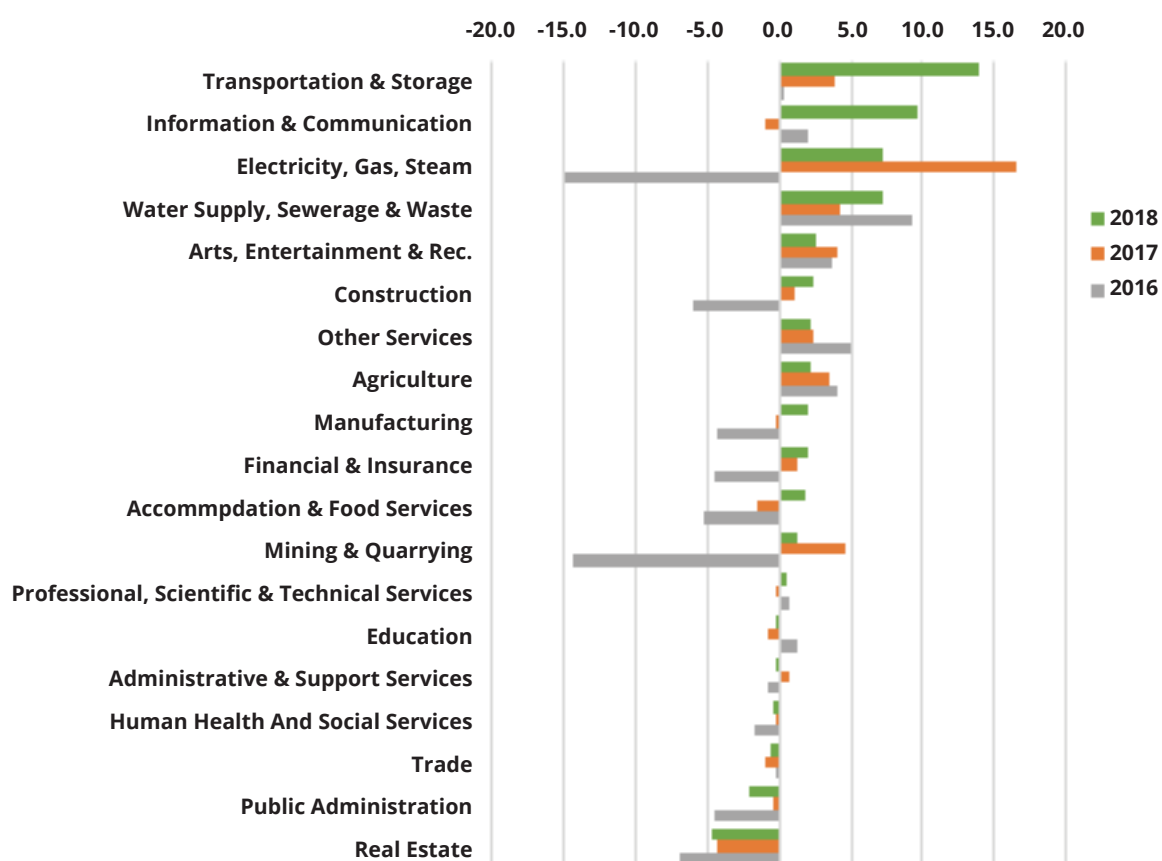
Source: National Bureau of Statistics

The contribution of the oil sector to aggregate real GDP was 8.60 percent, slightly lower when compared with 8.67 percent in 2017. Regulatory uncertainty in the oil sector is likely to undermine investments in the sector. This can affect the activities in the non-oil sector as foreign exchange (FX) availability and accessibility can stress activities that require FX for imports of primary inputs.

Fig. 8. Share of GDP (%)
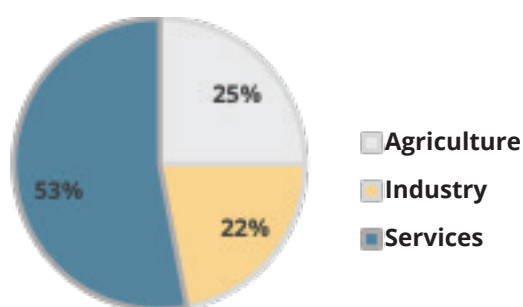
Source: National Bureau of Statistics

3.3   Nigeria's External Trade

Nigeria's total merchandise trade stood at N32.26 trillion in 2018, representing 39.3 percent increase over the corresponding period in 2017 (Fig. 9). Of this, the total export component was N19.01 trillion, nearly double the pre-recession levels. The import component stood at N13.1 trillion showing an increase of 49 percent when compared with the level in 2016 when trade balance was in negative territory by N290 billion. Oil prices recovery, stable domestic oil production volumes, as well as restoration of activities in the tradable sectors, were responsible for the rebound to the positive trade balance.

In terms of market share by sector in total trade, Table 1 highlights that the crude oil and other petroleum oil products constitute the highest share of Nigeria's export with 82.3 percent and 11.4 percent respectively. It is important to recall that the oil sector accounts for less than 9 percent of the country's GDP. This highlights the need for speedy diversification of the economy so that Nigeria can take advantage of the enormous market opportunities that the AfCFTA offers. Agriculture, on the other hand, which contributes up to 25 percent of the country's GDP, accounts for only 1.6 percent of the country total export as of 2018. On the flip side, 56.7 percent of imports are manufactured goods. This is in spite of the fact that the manufacturing Purchasing Managers' Index (PMI) in the month of December 2018 stood at 61.1 index points, indicating expansion in the manufacturing sector for twenty-one consecutive months (CBN, 2018). This is reflective of the significant constraints in the industrial sector as it remains the least contributor to the nation's GDP. Import share of other petroleum oil products at 27.8 percent highlights the weakness of the country to create value addition from its crude oil extraction. Raw materials and agriculture goods were both 8.6 percent and 6.5 percent respectively.

Fig. 9. Nigeria's Merchandise Trade (N' Billion)
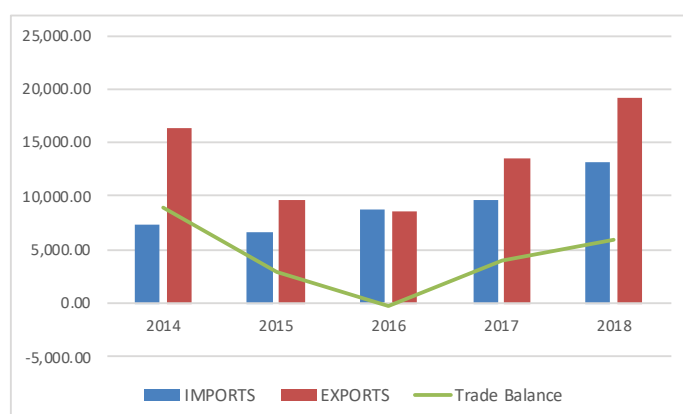
Table. 1. Market Share in Total Trade, 2018

Sectors	% Share of Total Exports	% Share of Total Imports
Agriculture	1.58	6.5
Raw Materials	0.72	8.6
Solid Minerals	0.34	0.5
Energy Goods	0.22	0.0
Manufactured Goods	3.38	56.7
Crude Oil	82.33	
Other Petroleum Oil Products	11.43	27.8

Source: National Bureau of Statistics

More specifically, as depicted in Figure 10, crude oil and petroleum products constitute the largest exports in Nigeria, Angola, Libya, Algeria, Egypt. Precious metals and minerals are largely exported by the Democratic Republic of Congo, Central African Republic, Sudan, South African countries while food and drink (especially coffee) is a major trade in East Africa, as well as Cote D'Ivoire and Senegal.

Fig. 10. Largest Exports by Country in Africa
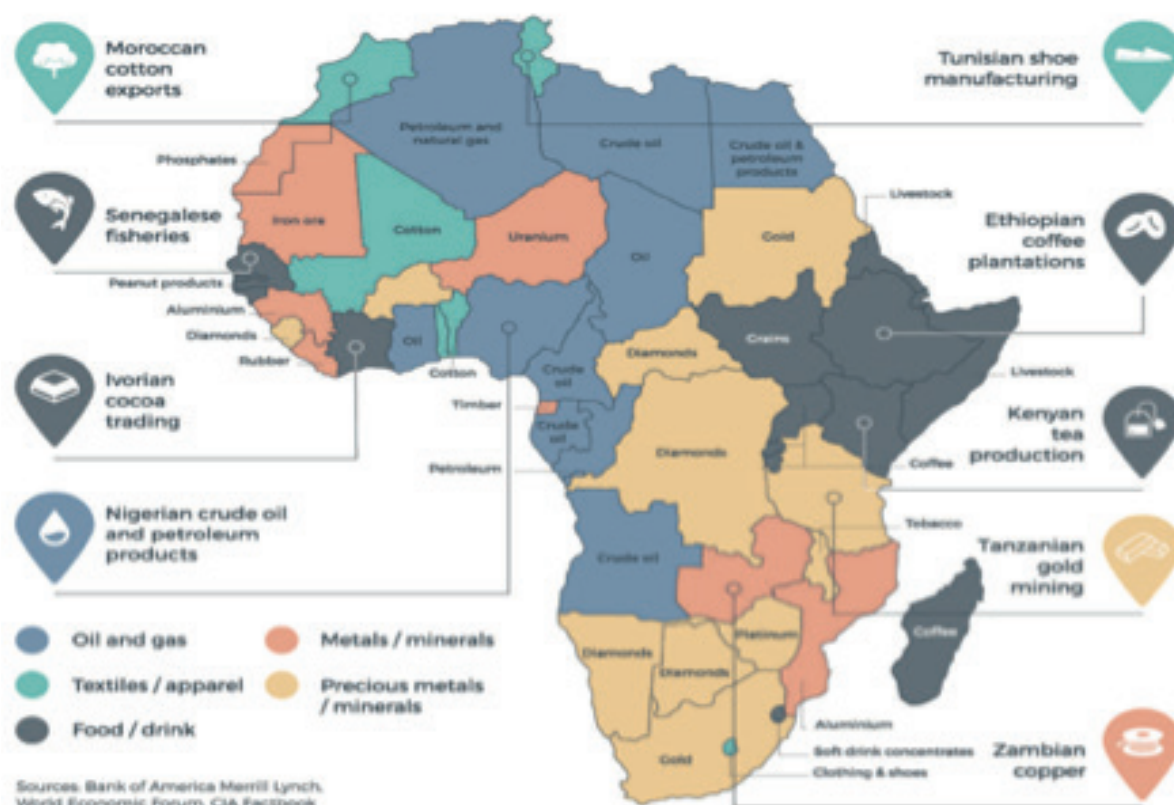
Source: Bank of America Merrill Lynch, World Economic Forum and CIA Factbook

Nigeria has been importing more from non-ECOWAS African countries than from ECOWAS countries since 2016 (Fig. 11). However, most of the country's import comes from Europe and China. A similar pattern is also observed in exports (Fig. 12); in Africa, Nigeria exports more to non-ECOWAS countries while Europe and China dominate Nigeria's export commodities. The share of Nigeria's export to and imports from Africa averages 14 percent and 4 percent, respectively over the last four years. However, when considered by the country, South Africa is the only African country that falls in the top ten destinations of Nigeria's exports. No African country made it to the list of Nigeria's top ten import trading partners (see Tables 3.2 and 3.3), an indication of low intra-African trade. As of December 2018, China and India dominated Nigeria's import and export with about 25 percent and 15 percent shares respectively.

Fig. 11. Imports by Region and Major Trading Partners (N' Billion)
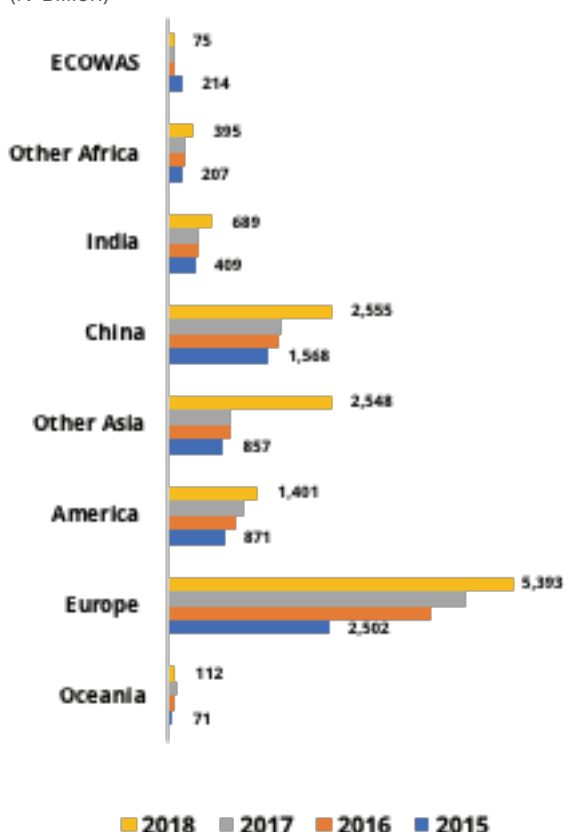
Fig. 12. Exports by Region and Major Trading Partners (N' Billion)
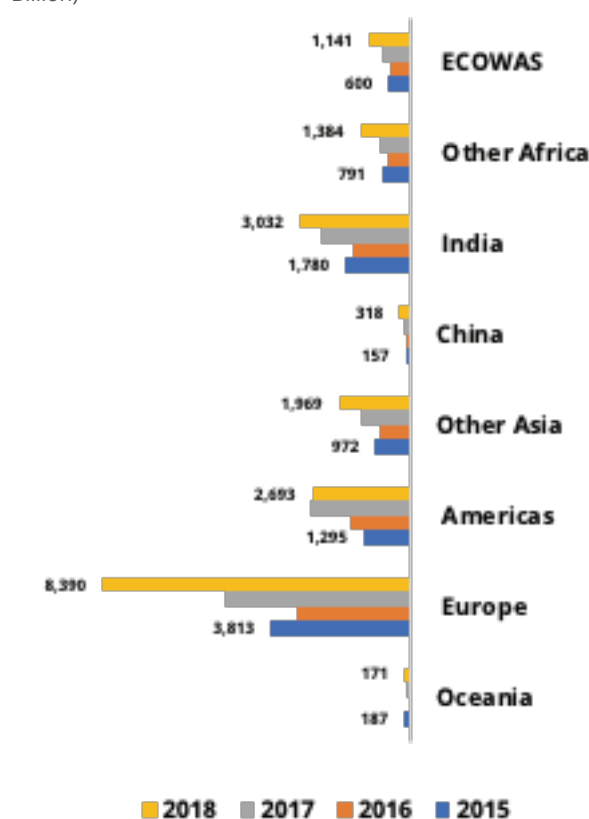
Table. 2. Share of Import by Country (%)

Country	Value (Naira)	% Share of Total
China	900,049,775,374	25.12
United States	373,302,885,408	10.42
Netherlands	327,448,018,768	9.14
India	230,967,221,682	6.45
Belgium	196,995,399,938	5.50
United Kingdom	147,011,054,456	4.10
Germany	122,149,427,597	3.41
Italy	95,702,840,538	2.67
France	90,041,047,670	2.51
Russia	86,311,344,715	2.41

Table. 3. Share of Export by Country of Destination (%)

Country of Destination	Value (Naira)	Crude Oil (Naira)	Non Crude Oil Value (Naira)	% Share of Total Export
India	780,057,797,616	730,298,844,590	49,758,953,026	15.53
Spain	569,382,737,040	471,625,295,769	97,757,441,271	11.33
France	496,056,851,338	432,151,742,057	63,905,109,282	9.87
South Africa	340,054,897,383	339,730,186,425	324,710,957	6.77
Netherlands	328,724,706,832	272,551,295,142	56,173,411,690	6.54
Indonesia	258,669,510,875	248,238,525,756	10,430,985,120	5.15
Brazil	226,615,506,712	204,139,717,706	22,475,789,006	4.51
United Kingdom	215,670,938,230	209,343,539,129	6,327,399,101	4.29
Canada	203,181,630,570	202,973,109,181	208,521,388	4.04
United States	198,937,754,710	187,508,799,875	11,428,954,834	3.96

Source: National Bureau of Statistics (NBS)

A critical underlying point of emphasis from this overview of the economy is the role of the oil sector in Nigeria's economic performance. The recent episode of oil price crash has shown how dependent the non-oil economy is on the performance of the oil sector vis-à-vis the stability, or otherwise, of the local currency. Thus, the outcome of any change in the country's trade policy will be exacerbated by the impact of the oil sector on Nigeria economy. Thus, the extent to which a fall in oil price or quantity shocks to domestic production volumes affect external reserves and or exchange rates (and invariably, the supply of foreign exchange), may aggravate the effects of a tariff liberation such as programmed in the AfCFTA. In addition, given the relatively small size of Nigeria's trade with other African countries, a change in trade policy that eliminate tariff among African countries and stimulate exports may not yield much in revenues to the country.

3.4 Overview of Existing Regional Trade Agreements in Nigeria

Trade has been a key driver of economic, social and political integration of West African countries for many centuries prior to the establishment of the Economic Community of West African States (ECOWAS) in 1975. Hence, the regional community since inception has been making giant strides in the area of community integrative schemes to enhance the integration of West African states. Current integration schemes include liberalization of regional trade, liberalization of movement of persons, goods and services, harmonization of monetary and fiscal policies, harmonization of business law, development of transport, communications and energy networks and involvement of private sectors in the regional integration process. Factors put into consideration in all of these integration initiatives include their relevance to national economic interests of member-states and contribution to the ultimate economic union goals. Compared to other regional arrangements on the African continents, ECOWAS is arguably the most advanced, although still miles apart from the achievements of its European Union counterpart.

The determination to ensure accelerated regional development through economic integration was the main consideration of the Heads of member states for the enactment of the ECOWAS Protocol on the Free Movement of People and Goods. The Protocol sought to remove every impediment or barriers to trade movement of its citizens across borders of member states. The Protocol on free movement conferred on Community citizens the right to enter and reside in the territory of any member state, provided they possessed a valid travel document and international health certificate. However, it also allowed member states the right to refuse admission to any Community citizens who were inadmissible under the member state's own domestic law. The four supplementary protocols adopted between 1985 and 1990 committed member states, among other things, to: provide valid travel document to their citizens, grant Community citizens the right of residence for the purpose of seeking and carrying out income-earning employment, ensure appropriate treatment for persons being expelled, not to expel Community citizens, limit the grounds for individual expulsion to reasons of national security, public order or morality, public health or non-fulfillment of an essential condition of residence. The ECOWAS Protocol on free movement, however, is considered very germane to the overall objective of the ECOWAS integration policies. This is because there cannot be any genuine integration if free movement of the community citizens who are considered as agents of integration is hampered. Thus, the Protocol is at the heart of the organizations' objective.

3.4.1 Regional Trade Agreements in West Africa (ECOWAS)

The Economic Community of West African States (ECOWAS) was established with the objective of liberalising trade among member states, and ultimately achieving an economic and monetary union after successfully going through the process of a free trade area, customs union and common market. Specifically, it aimed at the elimination of all tariff and non-tariff restriction on intra-ECOWAS trade, the establishment of a common external tariff (CET) and commercial policy against non-ECOWAS countries, abolition of all obstacles to the movement of all factors of production, and harmonization of domestic policies across its member-countries. ECOWAS articulated a comprehensive trade liberalization programme, the ECOWAS Trade Liberalization Scheme (ETLS) quite early in its existence. Implementation scheduled to start in 1979 was launched in 1990.

The benefits sought by Nigeria under the ETLS include:

1. Regional Market Access Assurance - given that ETLS provides certainty for companies/product to diversify exports away from the dominant petroleum sector;

2. Capacity Building which provides strong potentials to stimulate human and technical capacity building required to meet competition in the global market; and,

3. Increased productivity and earnings to companies - promoting industrialization through export-led growth.

As described above, the ETLS seeks to deepen the status of the region as a free trade area and

also fast track the establishment of a customs union by ensuring the free movement of originating goods across the territories of member states, without being subjected to any form of tariff or non-tariff barriers. The ETLS is designed to create opportunities by:

1. Opening new markets for goods and services;

2. Increasing investment opportunities;

3. Making trade cheaper-by eliminating all customs duties; and,

4. Making trade faster-by facilitating goods transit through customs and setting common rules on technical and sanitary standards.

However, it should be noted that not all originating goods are covered under the Scheme.

3.4.2 General and Specific Objectives of AfCFTA

An important objective of the AfCFTA is to strengthen trade and industrial development in the region which enhances the connectedness of African economies. Specifically, it aims to drive a continental market with free movement of goods, services, capital and people across country borders, which is able to strengthen and deepen economic integration, industrialization and Africa's structural transformation.

The general objective of the agreement is to have a continental liberalised market that establishes a continental customs union and, overall, promote a sustainable inclusive economic growth. This will specifically be through successive rounds of negotiations, a progressive elimination of tariff and non-tariff barriers, co-operation on investment, customs and trade facilitation matters; and the design of dispute management mechanism.

The general objectives are summarized as follows:

1. Create a single market for goods and services which is facilitated by the free movement of people in line with the Agenda 2063 objective of deepening economic integration of the African continent;

2. The establishment of a liberalised market for goods and services through rounds of successive negotiations;

3. Contribute to smooth movement of capital and people which facilitates investment, building on the initiatives and development in State Parties and Regional Economic Communities (REC);

4. Form the starting point for the creation of a continental customs union in the future;

5. Drive the attainment of an inclusive and sustainable socio-economic development that promotes gender equality and structural transformation of Member States;

6. Enhance the competitive capacity of Member States countries within the continent and the global economy;

7. Support industrial development through diversification, agricultural development, ensuring food security and regional value chain; and,

8. Develop mechanisms for addressing challenges of multiple and overlapping memberships which quickens the process of regional and continental integration.

These objectives are to be achieved through progressive elimination of tariff and non-tariff barriers; gradual liberalization of trade in services; co-operation issues relating to investment, intellectual property rights, completion policy and custom matters; and, establishment of a dispute settlement mechanism and maintenance of an institutional framework for the implementation and administration of the agreement.

3.4.3 Protocol on Trade in goods and services

The scope of the AfCFTA is to cover trade in goods, services, investment, intellectual property rights and completion policy. The AfCFTA legally establishes clear, transparent and predictable rules to guide trade which are contained in the protocol on goods and protocol on services in the agreement. The provisions in the agreement are built on principles of previously existing agreements such as regional trade agreements, World Trade Organization (WTO) trade facilitation agreement, Agenda 2063, principles of reciprocity, non-discrimination, transparency, among others. The protocol consists of general obligations and provision for national tariff concession schedules with nine annexes. These annexes cover schedules of tariff concession, rules of origin, customs co-operation, trade facilitation, non-tariff barriers, technical barriers to trade, sanitary and phytosanitary standards, transit and transportation facilitation and trade remedies. These provisions are to serve as the basis for negotiations on the different elements of trade in the agreement. Relating to the protocol on trade in services, the objectives are to enhance the competitiveness of services, support sustainable development and investment, ensure consistency and complementarity as well as promote research and technological development.

4.0 Literature Review

4.1 Theoretical Perspectives

Different theories have been used to explain the motives behind trade agreements such as the theory of comparative advantage in trade theory and the theory of contracts. These theories are adopted in the design of the structure and implementation modalities of trade agreements. They also explain the various forms that the agreement can take and the implications they have on the economy (see Zissimos, 2002; Plummer et al., 2010; Beshkar and Bond, 2017; Rodrick, 2018 for a detailed discussion on theoretical approaches to trade agreement). Regional economic integration and the comparative advantage theory as the foundation of trade agreements form the basis on which the principles of free trade agreements are based. These principles emphasize the fact that countries around one another will gain more when they trade together in the products they have a comparative advantage. They equally provide necessary measures to address issues that may arise, one of which is rules of origin. This specifies the origin of the production of the imports to make a decision on the appropriate tariff to apply. Zissimos (2002) used the theory of non-cooperative networks to explain the tendency for trade agreements to be regional. This is because regional Free Trade Agreements (FTAs) will tend to have higher pay-offs than non-regional ones which yield positive gains.

Engaging in free trade implies reducing or eliminating tariffs on goods from member countries which enhances competition that results in greater output and welfare even though it may result in smaller profits and lower tariff revenue for the government. The objective, therefore, is to increase the volume of trade which eventually improves economic welfare. Theoretically, motives guide the decision for a country to be a part of the free trade agreement. These motives could be economic or political. An economic motive for Free Trade Areas (FTAs) is the access of firms to more and larger markets which increase the volume of trade and policy predictability. This can then signal openness to investors which increase Foreign Direct Investment (FDI) inflow and achieve deeper commitments (WTO, 2011). In other words, FTAs can support firms by providing preferential access to a larger market which can increase a country's attractiveness as a destination for FDIs. Many free trade agreements follow a preferential trade agreement. They influence an economy by altering its trade and investment to enhance growth and welfare. As noted by Plummer et al. (2010), it is the preferential nature of the FTA that primarily concerns economists which is what impacts trade and welfare component.

Trade theory also often uses the concept of trade creation and trade diversion to estimate the likely impacts that free trade agreements will have on an economy. Trade creation benefits exporters of sending countries and consumers of receiving countries as the former have access to larger markets while the latter enjoys a wider range of products at lower prices. This invariably enhances global welfare through greater efficiency created by the agreement. There can also be trade diversion where trade is diverted from a more efficient exporter towards a less efficient one through the formation of a free trade agreement or customs union. This distinction is often an area of concern as trade pessimists believe that such agreements shift more towards trade diversion which may be detrimental to an economy. Also, the manner trade agreements influence key economic variables will be determined by the form it takes. Thus, the impacts of free trade on welfare, for example, will depend on either a new trade pattern is created or the agreement only result to the diversion of trade from a more competitive non-member to a member of the trade agreement. Jacob Viner showed in his 1950 seminal work that regional trade agreements do not necessarily improve member countries' welfare. He used the description of the dual concepts of trade creation and trade diversion to show this assertion.

Freund and Ornelas (2010), however, pointed out that many of the discriminatory concerns of trade economists seem excessive as they observed that empirical evidence actually suggest that trade creation is more of the norm rather than trade diversion. This is supported by Randolph (2017) who noted that, claims that FTAs are responsible for distortions and dislocations are misplaced. This may be due to the fact that governments have become careful in FTA negotiations, coupled with the adjustment of trade policies in a way that minuses distortions from discrimination. This

may be closely tied to the political economy of FTAs. According to the political-economy theory of trade agreements as documented in Maggi and Rodriguez-Clare (2007), trade agreements are motivated by the desires of the government to commit through domestic lobbies. These political motives can be driven by interest groups that lobby the government to favour a free trade agreement or otherwise, depending on which satisfies their interests. Also, countries' desire to use trade policy to reinforce wealth and empower relations can guide motives (WTO, 2011). In sounding a note of caution, Rodrick (2018) presented an alternative perspective that instead of trade agreements to neutralize the protectionists, it may rather empower a different set of rent-seeking interests and politically well-connected firms. Thus, governments need to be able to have a balanced approach.

4.2   Methodological Literature

Various methods have been applied to analyse the impact of a free trade agreement on an economy. These ranges from the use of descriptive statistics used in a number of reports (African Trade Report, 2018; Rose, 2018), to opinion polls and key informant interviews (Ihua et al., 2018), econometric (regression) analysis (Yasin, 2009) and use of sophisticated models. Plummer et al. (2010) documented different methodological approaches adopted for impact assessment of FTAs with their limitations. The study showed that, often, these approaches are usually complimentary with each other. Also, the method used may depend on whether the analysis is ex-ante (before negotiation) or ex-post (after implementation). As pointed out by Plummer et al. (2010), methodologies for the former involves the use of trade indicators, partial model for individual markets and Computable General Equilibrium (CGE) modelling for several markets, while the latter engages the use of preference and welfare indicators and also, the gravity model (Tanyi, 2015; Ngepah & Udeagha, 2018; Yao et al., 2019).

Other methods involve the use of case studies based on interviews and surveys (using a questionnaire). There is also mixed approach as seen in Ihua et al. (2018) where the study employed the use of polls from the business community, interviews and simulation analysis on the impact the AfCTA on Nigeria's growth and welfare; and Baier and Bergstrand (2004) used instrumental variables, control-function and panel approach to address endogeneity of FTAs.

These methods have various strengths and limitations. Their various strengths lie in the objective of the impact assessment which guides the choice of the most appropriate method to be adopted. Generally, the limitations of descriptive analysis and regression relate to its limited coverage of a partial aspect of the economy. Also, gravity models can suffer from specification bias. The model relies on the assumption that the counterfactual level of bilateral trade depends solely on the economic features of a specific pair of countries (Plummer et al., 2010). However, owing to measurement errors and key variable omission, the set of baseline variables may not produce a credible counterfactual.

These limitations make the CGE approach an appropriate and better methodology in the analysis of the impacts of FTAs, particularly relating to the entire economy. It is able to ascertain economy-wide and sectoral impacts. In terms of limitations, it uses extensive data and results are usually sensitive to assumptions and data used. This is, however, addressed through robustness checks and sensitivity analysis. Also, models may become complicated while modelling some effects such as non-tariff barriers to trade and endogenizing productivity spillover (Plummer et al., 2010). The advances CGE models are undergoing in line with economic theory and theoretical advances are addressing many of these challenges (Nilsson, 2018).

As noted earlier, the CGE model is widely used in the impact assessment of FTAs due to its ability to capture how the agreement will impact a different aspect of the economy. It is capable of measuring sectoral responses to policy changes in an economy and identify key losers and gainers. It is able to assess which aspects of the economy is most affected and with what magnitude, also how effects in industries are transmitted throughout the economy. There are a number of different sophisticated CGE models that have been developed for the simulation of changes in economic conditions expected from a trade agreement. These models can be used to estimate the impact of a trade agreement on trade flows, labour, production, welfare, and the

environment. A key element of CGE models is that results are usually sensitive to the assumptions used in establishing the parameters of the model.

The analysis is commonly on preferential tariff elimination or reduction, and not on non-tariff barriers to trade in goods. Generally, results from CGE analysis show that there are economic and welfare gains with FTAs. Phan and Jeong (2016) identified the CGE model, especially global models such as the GTAP model, as a good instrument for identifying the winning and losing sectors including countries under policy changes involving various aspects of FTAs. This model was employed for the FTA proposed between Vietnam and Korea. In analysing the estimated impact of a bilateral Malaysia-US FTA, Jafari and Othman (2013) used the GTAP CGE model and found that Gross Domestic Product (GDP) and net welfare will increase.

Mold and Mukwaya (2017) also applied the GTAP CGE model and database to measure the impact of a tripartite FTA (COMESA-SADC-EAC) on industrial production, consumption and trade flows in 26 African countries. The results indicated a significant increase in intra-regional exports by 29 percent. They observed that the fears that FTA could lead to the concentration of industrial production in countries with the highest productivity levels were exaggerated. European Union (2009) used a CGE model for the analysis of the FTA between the Association of Southeast Asian Nations (ASEAN) and the European Union (EU) under three scenarios. They found that overall; the FTA is expected to have a substantial positive impact on macro variables such as GDP, income, trade and employment while the positive impact for the EU was small. Also, Balistreri et al. (2016) used an innovative multi-region CGE model that estimated the changes in macroeconomic and social variables which affects poverty and shared prosperity in line with the broad objectives of the World Bank. Lewis, Robinson and Thierfelder (1999) used a multi-country CGE model of South Africa to assess the impact of a South Africa-EU FTA. Saygili, Peters and Knebel (2018) employed the GTAP CGE model to assess the associated costs and benefits of the African Continental Free Trade Area. Fukase and Martin (2015) used an applied general equilibrium model.

Lee and Kim (2012) showed the relationship between trade policy and market structure which had been under debate for many years. An important aspect of the paper was assessing an alternative specification of market structure in applied trade models which provided a comprehensive comparison of different market structure in a more realistic setting based on quantitative assessment of ASEAN+3 FTAs. The paper further described the perfectly competitive model (perfect competition and CRTS technology) and the imperfectly competitive model (imperfect competition and IRTS technology) using data from GATP version 7 with the benchmark year of 2004. The data was re-aggregated and then converted into a format that can be used in GAMS with a regional CGE model of increasing returns to scale and imperfect competition. They showed that the degree of product specification should be specified in the model before the market power can be modelled. It is, therefore, evident that the CGE model is an appropriate tool for assessing the impact that a continental FTA such as the AfCFTA, will have on various aspect of an economy, showing the likely areas of gains and losses. The evidence for Nigeria is, however, limited which is an area of contribution for this study.

Closure Rules

Choice of macro closure in any CGE work is very critical as this determines the reliability of the results of the modelling exercise. In terms of choice of macroeconomic closure rules, many often adopt conventional closure rules with regards to trade barriers removal obtained from the reliable empirical literature. For example, Cheong, Jansen and Peters (eds.) (2013) stated that macroeconomic closure of the MIRAGE model is obtained by keeping the current account of each region constant and fixed to the base year. The real exchange rate is allowed to adjust in order to balance any possible disequilibrium of the current account. In other words, when a trade reform, such as reduction of tariff barriers stimulates trade, the real exchange rates appreciate when exports increase more than imports and depreciate when the exports increase less than the imports.

Simulation Scenarios

Simulation scenarios are used to describe the different shocks to the steady state equilibrium.

The numbers of scenarios could be two, three or four, depending on the objective of the study or the trade agreement. This can include a baseline scenario which reflects the economy before any policy change. Common scenarios are a gradual and complete removal of import tariff or a one-time removal of import tariff or trade barrier indicator. In some cases, there can be an exception or exclusion of some sectors, which can be for protection purposes aimed at increasing their competitiveness. These are categorized as sensitive products or industries. For example, Phan and Jeong (2016) simulated two scenarios, a 50 percent trade liberalization and a full liberalization. Under the first simulation, the fishing and other agricultural products tariff were reduced by 50 percent in Korea, while machinery and transportation equipment sectors were reduced by 50 percent in Vietnam as they were identified as sensitive sectors and tariffs on other sectors are completely eliminated. This presents the short run and the long run impacts where the former implies likely immediate impact after signing the agreement and the latter suggests likely effect occurring within the first five to ten years. Fukase and Martin (2015) performed a simulation of 100 percent ad-valorem equivalent tariff cuts for goods and 50 percent for services. The European Union (2009) made three simulation scenarios of a limited FTA (short and long run), extended FTA (short and long run) and extended FTA plus (short and long run).

Simulation scenario by Lee (2001) was based on two simulations that involved a bilateral removal of trade barriers in all sectors other than agriculture and food as well as reductions in customs costs. Then, there was a simulation that assumes that the FTA leads to increased competition and efficiency improvements. A three-level simulation by Meseret (2011) presented a one-time full tariff removal, then assumes a phased 20 percent yearly tariff removal from 2011 – 2015 and finally a phased removal with the exclusion of some strategic sectors of the economy from the EPA. Hailemeskel (2016) simulated a four-level simulation starting with a baseline scenario followed by gradual removal of tariff for all products (over a four-year period, a 25 percent tariff removal is considered). Thereafter, a one-time complete abolishment of tariff for all goods in 2016, and finally a one-time complete removal of tariff for all goods in 2016 except for some specific products. A multi-level simulation scenario that follows an initial long-term scenario and the short term was employed in Saygili et al. (2018). The long-term scenarios followed a full FTA where economic and welfare gains were found to increase and a special product categorization scenario where these gains fell. In the short-term adjustment costs scenario, three tariff reduction transition modalities were adopted. This includes a linear, progressive and two-phased tariff cuts simulation scenarios.

4.3   Empirical Evidence

The theoretical foundations of free trade arrangements provide support for estimating their potential economic and social effects as documented in the empirical literature. There are a number of empirical evidences on the impact of trade agreements on an economy or region but as stated by DiCarprio et al. (2017), the empirical evidence on the impact is not conclusive. This may be connected to the political structure underlying the agreements and the nature of the countries/regions involved. This covers unilateral, bilateral and multilateral agreements.

4.3.1   Macroeconomic and Sectoral Performances

In implementing free trade agreements, a common concern is its potential impacts on key macroeconomic variables such as GDP, investment, interest rates, inflation and exchange rates. It also considers how different productive sectors are affected and which ones are top gainers and losers. There is evidence that suggests that FTAs will improve growth by increasing GDP through an increase in trade. In Saygili et al. (2018), a simulation of full tariff elimination increased GDP by 0.97 percent and employment by 1.17 percent. Also, with the free trade agreement between the European Union (EU) and South Africa, Assarson (2005) found that South Africa gained through improvement in trade volume, while its trade to other Southern Africa countries declined. It is, however, not certain if the decline was due to the trade agreement with the EU. Lewis et al. (1999) observed that trade creation dominated trade diversion in FTA with the EU for South Africa and the agreement was beneficial to other Southern African countries due to the access to the European market. Fukase and Martin (2015) investigated the economic implications of a potential free trade agreement between India and the USA and simulation results indicated

the possibility of overall positive gains for both countries. However, it is important to point out that evidence equally exists in scenarios where FTAs generate a reduction in GDP. Lambrechts et al. (2012) noted exceptions to scenarios where free trade increases GDP and GDP per capita and this trend is particularly shown in countries that had experienced social or political unrest. The study stated that this result is consistent with the literature on the relationship between economic freedom and GDP growth which suggests that levels of economic freedom (where trade freedom is a component) of a country, impacts growth subject to economic, social or political environments (Lambrechts et al., 2012). Thus, even though trade freedom may be a necessary condition for increasing GDP per capita, it is not a sufficient condition given that other factors such as resource endowment and political stability influence the process (Lambrechts et al., 2012). This is also consistent with the simulation results of Adenikinju and Bankole (2014) where there was a gradual decline in real GDP of Nigeria with the EU-West Africa Economic Partnership Agreement (EPA).

Considering the impact on labour and employment, Grandi (2009) provided a political and legal review of how international labour standards have evolved over time in the international trade arena while analysing current trends and negotiations relating to trade and labour standards at regional, bilateral and multilateral levels. The study reviewed four major models that address labour issues within the context of regional trade agreements and opined that there are obvious gains from introducing labour standards in regional trade agreements. In assessing the impact of USA's FTAs on the output and labour productivity of partner countries, Khachaturian and Riker (2017) noted that the trade agreements had a significant positive impact on partner countries' growth rates, enhanced through technology transfers - though these increases occurred with delays and appeared to be temporary. Balistreri et al., (2016) found deep integration in the Eastern and Southern Africa to be pro poor with estimated gains considerably varying across countries and a raise in wages in the short and long run while the unskilled workers will tend to benefit more compared to skilled workers in the long run.

There are also studies that considered the impact of Free Trade Agreement (FTA) on specific sectors such as that of Israel (2014) who assessed the likely economic, distributional and fisheries resource impacts of a potential FTA between the European Union (EU) and the Philippines fishery sector. The study found an increase in fisheries output and exports with increased market diversification where non-tariff barriers (NTB) also hinder the free flow of fisheries products from the Philippines to the EU. As pointed out by Mold and Mukwaya (2017), these NTBs are key challenges in the establishment of tripartite FTAs as some are employed as tools for trade policy (subsidies, quotas, export restrictions) or non-trade policy objectives (technical measures).

European Union's (2009) trade sustainability report provided more insights on the anticipated economic, social and environmental impacts of the free trade agreement between the EU and the Association of Southeast Asian Nations (ASEAN) for selected sectors which assists the negotiation process. The results show that income and trade gains increase as liberalization deepens, and as more dynamic effects are taken into account, especially for the ASEAN countries. They found that overall, that the FTA is expected to have a substantial positive impact on macro variables such as GDP, income, trade and employment, while the positive impact for the EU was small.

Saygili et al. (2018) found that firms will gain from economies of scale and access to a large continental market, resulting in increased competitive pressure that can improve firm efficiency over the long-term horizon. In the long run, the trade liberalization will lower trade costs and provide access to a greater variety of products for consumers at lower prices. However, it cautioned that market consolidation may arise when smaller firms are exposed to stiffer competition. Simulation results from Mold and Mukwaya (2017) noted that manufacturing sectors will benefit the most for AfCFTA, especially the processed food, light and heavy manufacturing with a tariff elimination in the tripartite free trade agreement. This was able to alleviate the fears that the tripartite agreement could lead to the concentration of industrial production in areas of highest productivity levels (Egypt and South Africa).

Akeyewale (2018) noted that the winners in the trade agreements will be Africa-owned companies who are able to enter new markets and economic growth will expand as manufacturing and industrialization becomes bigger due to the new inflow of foreign investment. In the same vein,

there will be lower input costs and increased efficiency since the agreement will ease imports of raw materials with multinational firms partnering with domestic firms to develop raw materials and engage in technology transfer. There are also expected potential losses which involve the challenge in harmonizing Africa's heterogeneous economies under one agreement and the increased competitive pressure it may generate. Other problems that may result are the stifling of domestic productive capacity as imported goods may become cheaper and environmental depletion from overexploitation of natural resources. Many firms may begin to cut cost, including the cost of environmental disposal. Also, if policies on intellectual property are not adequately enforced leading to duplication of ideas and innovation, it can discourage investment in Research and Development (R&D).

The losers can involve the government in the form of loss of revenue from the tariff, individuals in specific sectors who may lose their source of livelihoods and workers who may become unemployed in particular sectors. Israel (2014) suggested that losers that may arise from the arrangement could be compensated by the government putting in place adequate safety nets. Strengthening the implementation of resource and environmental management can be a way to tackle the problem of overexploitation of natural resources that may arise (Israel, 2014). Therefore, countries are to negotiate trade reforms and agreements based on how it affects them (Balistreri et al., 2016). ITC (2018) noted that due consideration to the private sector during negotiations is vital given that the business communities are most responsible for moving goods and services across the border. This makes them stakeholders (Andriamahatana & Chidede, 2018). Therefore, in ensuring that the negative impacts are minimized, there should be due consideration and examination of the institutional capacities of the various countries. This is in addition to the provision of necessary safeguards and social safety nets for the losers that emerge from the implementation of the agreements.

According to DiCaprio et al. (2017), RTAs are able to enhance domestic productive capacity, improve institutions, promote an upward harmonization of standards, increase preferential access to desired markets and introduce technical expertise to the domestic market.

An important aspect of FTAs is to ensure mutual benefits for all involved in the agreement. As noted by Phan and Jeong (2016), FTAs between countries with different levels of economic development can have a negative effect on countries with lower income levels. This invariably implies that the negatively impacted country will need to decide the right balance between liberalization and development and the most appropriate time to open up to other markets. A crucial concern in negotiating free trade agreements is usually if countries at the lower part of the income ladder are able to sufficiently capture the gains of development from trade integration (DiCarprio et al., 2017). Thus, the arrangement must be designed in a manner that it does not only improve economic growth variables but also lowers income inequality in member countries. Also, it should not deteriorate terms of trade in any form. It is, however, unclear in the literature if the main purpose of trade agreements is to either eradicate manipulation of terms of trade or to ensure that domestic exporters are granted satisfactory access to foreign markets. At the centre of the debate are discrimination and the potential for trade diversion (Freund & Ornelas, 2010). Getting the best from trade agreements will depend on the ability to improve the design of the trade agreements. Evidence, as stated by Balistreri et al (2016), suggests that trade costs are a much more substantial barrier to trade than tariffs, particularly for the Sub-Saharan African (SSA) region.

4.3.2   Trade in Services

The strategic importance and contribution of the service sector in Africa make it essential to assess the potential impacts of regional free trade agreements on the sector. The export of services provides an opportunity for improvements in welfare through allocative efficiency. Also, the agreement has to make adequate provisions for the protection of intellectual properties. Zhu (2013) used a gravity model to assess the effect of a China-Japan-Korea FTA and found that trade in goods will increase by 21 percent to 46 percent while trade in services will increase by 49 percent to 79 percent. Also, Mold and Mukwaya (2017) investigated the impact that the proposed COMESA-SADC-EAC tripartite FTA will have on 24 African countries' trade flows, industrial

production and consumption. They found that intra-regional trade increased by 29 percent with increases in intra-regional exports. They pointed out that fears that FTA could concentrate on industrial production in countries with the highest productivity levels were exaggerated. The International Trade Center (ITC 2018) noted that intra-Africa trade in services is low and the implementation of the AfCFTA can boost it. This has to be within a developed financial sector, increased educational standards and strong governance structure.

4.3.3   Welfare and Social Development

Welfare effects are usually an important area of consideration during negotiations as welfare improvements represent a key objective of FTAs. Most studies reported improvements in welfare with free trade agreements. Mureveriwi (2016) used a dynamic CGE model to find that the establishment of the CFTA will culminate in improved welfare for many African countries, at varying degrees. The study further pointed out that alleviating the impact of the loss of revenue will require innovative alternative sources of income. Phan and Jeong (2016) provided an analysis of the potential impacts of the Vietnam-Korea FTA using a general equilibrium model and found welfare gains for both countries where the gain for Korea was 4 to 5 times more than Vietnam under the two scenarios simulated. Also, a significant proportion of the gains were from allocative efficiency. Results from the full simulation scenario of Saygili, et al. (2018) indicated significant welfare gains of US$16.1 billion despite a US$4.1 billion loss of tariff revenue, though these gains are not equally distributed among member countries. This suggests that welfare gains outweigh revenue loss from the elimination of tariff. Short run impacts relate to the loss of tariff revenue and adjustment costs whose magnitude are not uniform across the continent. They pointed out that the costs and benefits of the agreement can be minimized through the exemption of sensitive products. DiCaprio, et al. (2017)'s analysis suggest that regional integration reduces intra-household inequality with increases in bilateral trade and GDP per capita growth through the channels of bilateral preferential trade and third-party preferential trade.

4.3.4   Some Conceptual Issues: Importance of Trade and Trade Agreements

Trade had been recognized as a necessary ingredient for economic prosperity and development, hence, the clamour for free trade. As a source and engine of economic, social and political integration (UNCTAD, 2016), it provides employment opportunities, increases economies of scale, raises the standard of living and enables consumers to access a wide variety of products. Most importantly, it is a key determinant of foreign direct investment (Were, 2014). Also, regional integration is used as a tool for promoting and increasing trade flows. However, despite the numerous advantages of trade in fostering economic development, it also has some negative consequences. Trade can deepen inequality and deteriorate the environment through increased pressure on natural resources, thus, making some players become losers. A key concern for many trade analysts is fully understanding the operations of free trade agreements and how they impact on various aspects of an economy.

The importance of trade made it imperative to promote trade agreements to boost trade globally and strengthen relationships. The past decade had, thus, witnessed various forms of free trade agreements across countries and regions. Free trade agreements are important for economic developments as they can create larger, dynamic and more efficient markets through trade liberalization (Phan & Jeong, 2016). Also, trade agreements provide access to international markets for domestic producers. Trade agreements, especially Regional Trade Agreements (RTAs) have become a key feature of international trading landscape and framework that influences the behaviour of governments and traders (Grandi, 2009). It serves as a useful choice tool in promoting growth and trade (DiCaprio, Santos-Paulino and Sokolova, 2017). According to DiCaprio et al. (2017), RTAs are able to enhance domestic productive capacity, improve institutions, promote an upward harmonization of standards, increase preferential access to desired markets and introduce technical expertise to the domestic market.

These outcomes benefit developing countries even though some other studies have indicated that the gains for low-income countries are minimal. These low gains can be attributed to the

poorly implemented structure of the agreements. Countries negotiate free trade agreements to sell their products at competitive prices and improve the value added for goods and services (Grandi, 2009). This invariably promotes international trade which enhances other indicators of growth and development. An important aspect of Free Trade Agreements (FTAs) is to ensure mutual benefits for all involved in the agreement. As noted by Phan and Jeong (2016), FTAs between countries with different levels of economic development can have a negative effect on the lesser developed country. This invariably implies that the negatively impacted country will need to decide the right balance between liberalization and development and the most appropriate time to open up to other markets. The importance of trade agreements is rooted in the reason why governments will be willing to go into agreements with other countries to restrict their own choices. As noted by Grossman (2016), they do this majorly to internalize international externalities.

A crucial concern in negotiating free trade agreements is usually if countries at the lower part of the income ladder are able to sufficiently capture the gains of development from trade integration (DiCarprio et al., 2017). Thus, the arrangement must be designed in a manner that it does not only improve economic growth variables but also lowers income inequality in member countries. Also, it should not deteriorate terms of trade in any form. It is, however, unclear in the literature if the main purpose of trade agreements is to either eradicate manipulation of terms of trade or to ensure that domestic exporters are granted satisfactory access to foreign markets. At the centre of the debate are discrimination and the potential for trade diversion (Freund & Ornelas, 2010). Getting the best from trade agreements will depend on the ability to improve the design of the trade agreements. Evidence as stated by Balistreri et al., (2016) suggest that trade costs are a much more substantial barrier to trade than tariffs, particularly for the Sub-Saharan African (SSA) region.

Table. 4. Summary of Empirical Literature.

S/N	Author (s)/ Year	Study Area	Objectives	Methodology	Findings
1.	Yao et al., (2019)	39 countries	Examined impacts of FTAs on bilateral CO2 emissions	Gravity Model	Positive impact of TFAs on environment, but mixed results for income-based country analysis. FTA is more beneficial for the environment of high-income countries than low income countries.
2.	Ihua et al., (2018)	Nigeria	Measure perspectives of a wide range of stakeholders about AfCFTA and simulate estimated impacts on growth, employment and welfare.	Mixed Methods	Positive impacts on businesses and the economy, but pessimism on international competition for domestic industries, issue of smuggling and dumping.
3.	Ngepah & Udeagha (2018)	Panel study	Assessed the trade effects of regional trade agreements in Africa.	Gravity Model.	Overall, Africa's regional trade agreement creates trade among member states without diverting trade with non-members.
4.	Adenikinju & Bankole (2014)	Nigeria	Investigated the potential impact of the EU-West Africa EPA on the Nigerian economy	CGE	Gradual decline in GDP to a maximum of 2 %; increase in interest rates by 25 %; likely fall in investment and rise in employment.
5.	Lambrechts et al. (2012)	19 Countries from 6 regions	Used an international perspective to ascertain if free trade result in higher GDP per capita	Descriptive and graphical analysis	Found strong correlation between a country's level of trade freedom and its GDP per capita; however, there are some exceptions. Other factors such as political stability, resource endowment and social environment can reduce GDP with free trade.
6.	Mold and Mukwaya (2017)	26 African countries	Measured the impact of a tripartite FTA on industrial production, consumption and trade flows	GTAP CGE	The results indicated significant increase in intra-regional exports by 29 %. They observed that the fears that FTA could concentrate industrial production in countries with highest productivity levels, were exaggerated.
7.	European Union (2009)	Association of Southeast Asian Nations (ASEAN) and the EU	Analysed the FTA between ASEAN and the EU	CGE	Overall, the FTA is expected to have a substantial positive impact on macro variables such as GDP, income, trade and employment while the positive impact for the EU was small.

S/N	Author (s)/ Year	Study Area	Objectives	Methodology	Findings
8.	Balistreri et al (2016)	Six African countries	Examined the poverty and shared prosperity implications of deep integration in Eastern and Southern Africa	multi region CGE	Found significant reductions in poverty headcount in the region with incomes of lower 40% of the population increasing in the countries engaged in trade reforms.
9.	Saygili, et al. (2018)	Africa	assessed the associated costs and benefits of the African Continental Free Trade Area	GTAP CGE	Found significant welfare gains and expansion in intra-Africa trade, output and employment in the long run, though these gains are not equally distributed among member countries.
10.	Phan and Jeong (2016)	Vietnam and Korea	Investigated the potential impacts of the Vietnam-Korea FTA	GTAP CGE	Found welfare gains for both countries where the gain for Korea was 4 to 5 times more than Vietnam under the two scenarios simulated. Also, a significant proportion of the gains were from allocative efficiency.
11.	Tanyi (2015)	15 African Countries.	Assessed the trade potentials of Africa regional markets in promoting trade integration	Gravity Model	Evidence of projectable trade gains that can be generated with the establishment of a Pan-African Continental FTA if Africa's rich populated market is maximized.
12.	Jafari & Othman (2013)	Malaysia and United States of America	Conducted an economy-wide and sectoral assessment of the economic effects of a potential Malaysia-USA FTA	Multi country CGE	Overall trade, GDP and bet welfare will likely expand for both countries
13.	Khachaturian & Riker (2017)	United States of America	Assessed the impact of United State's FTAs on the output and labour productivity of partner countries	CGE	Results showed a significant positive impact on partner countries' growth rates enhanced through technology transfers; though these increases occurred with delays and appeared to be temporary
14.	Fukase & Martin (2015)	India and United States of America	Investigated the economic implications of a potential free trade agreement between India and the United State America		Simulation results indicated the possibility of an overall positive gains for both countries.
15.	Lewis (1999)	South Africa	Assessed the impact of a South Africa-EU FTA	multi-country CGE	Observed that trade creation dominated trade diversion in FTA with the EU for South Africa and the agreement was beneficial to other Southern African countries due to access to the European market.

5. Assessing the Impact of AfCFTA on the Nigerian Economy:

Data and Methodology

The underlying data for CGE-based studies is the Social Accounting Matrix (SAM). A SAM is a snapshot of the Nigerian economy comprising the interactions between major sectors and commodities as well as economic agents in a single year (Mainar-Causape et al., 2018). These economic agents include households, a representative firm, government and the rest of the world.

The flow of economic transactions in the economy is captured in a square matrix in such a way that reflects the principle of market clearing. Therefore, the SAM represents a consistent and complete data system that captures the interdependence that exists within a socio-economic system (Cicowiez and Sanchez, 2012) in a way that ensures all returns for factors inputs are used in clearing all output in the goods market. This section highlights the structure of the economy within the SAM dataset, as well as the salient features of the CGE model, developed to satisfy the specific objectives of the study.

5.1. The Data: Structure of the Nigerian Social Accounting Matrix (SAM)
Description of the SAM

The 2014 Nigeria SAM (NSAM) is built specifically for this study based on the 2010 Supply and Use Tables from the National Bureau of Statistics (NBS). The data used in updating the SAM were from the Central Bank of Nigeria (CBN) and World Integrated Trade Solutions (WITs, World Bank, 2018). For consistency, in line with the NBS system of classification, an Input-Output (IO) Table was developed from which a 46-by-46 SAM was created. The SAM was further adjusted in line with the objectives of the study; thus, there are: 25 production activities related to domestic transactions, 2 factors of production (labour and capital), economic agents (4 households categories, a representative firm, government), capital account (savings, investments, and Margin), and the rest of the world (imports and exports). The NSAM captures the Nigerian economy and it is characterized by regional features. This allows for the rest of the world to be disaggregated into 15 regions.[2] The NSAM is designed to fit into the CGE model and provide a comprehensive benchmark database for the study.

The household is one of the major economic agents in the economy that supplies the labour force into the economy. The household is classified into four categories which are the rural rich household, rural poor household, urban rich household and urban poor households. These households generate their income based on their available factor endowments, a function of household income composition as in Table 5 below.

Table. 5. Households Income Composition

	Labour	Capital	Firm	Government
Rural-Rich Household (HRR)	4.5%	62.2%	33.3%	0.0%
Rural-Poor Household (HRP)	88.4%	0.1%	11.4%	0.1%
Urban-Rich Household (HUR)	5.1%	74.1%	20.8%	0.0%
Urban-Poor Household (HUP)	93.5%	0.1%	6.4%	0.0%

Source: Nigeria SAM, 2014.

[2]Senegal, Ghana, Cote d'Ivoire, Togo, East Africa, Central Africa, South Africa, Other West Africa, Other South Africa, European Union, USA, China, Other Asia and Rest of the World.

As revealed in Table 5, the rural rich and urban-rich households generate most of their compensated income from capital endowed factors. For instance, the rural rich households generate about 62.2 percent of their income from the capital, 33.3 percent from returns on their investment made in the firms and the remaining from labour. The income received as transfers from the government is relatively very low. Similarly, the urban-rich households earn about 74.1 percent of their income through compensation from the capital endowment, 20.8 percent on returns on capital and only about 5.1 percent of labour income. The reverse is the case for both poor rural and poor urban households as they generate about 88.4 percent and 93.5 percent respectively from their labour endowment. Therefore, the rich households in rural and urban earn more from their capital endowed factors, whereas the poor earn more from their labour endowment.

Fig. 13. Sectoral consumption by Household type
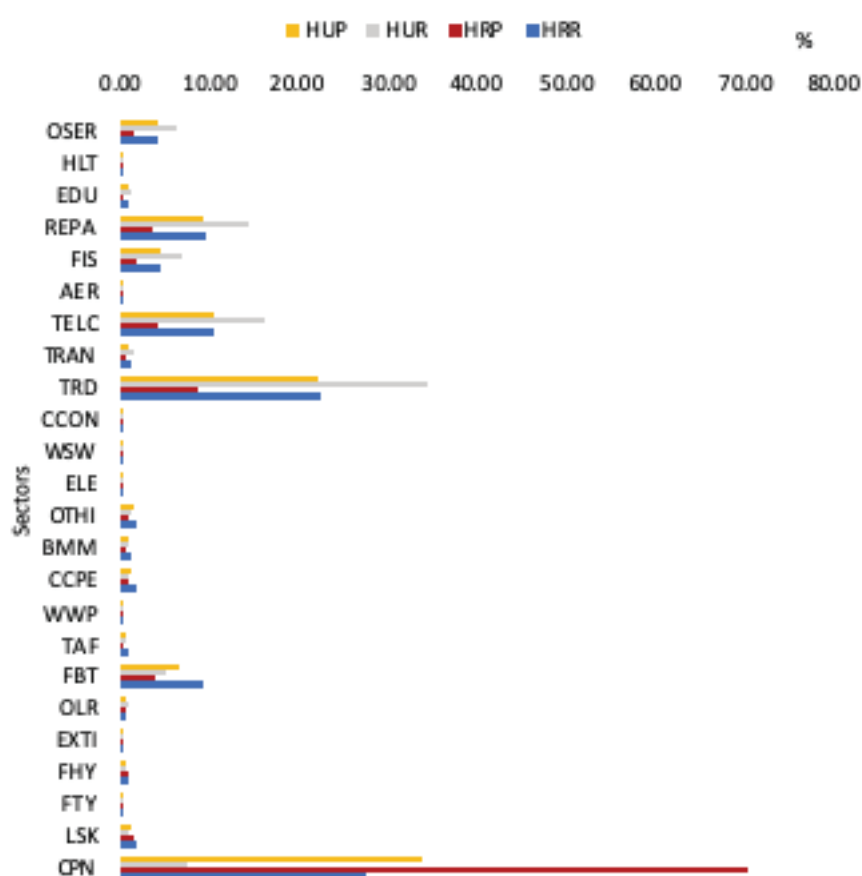
Source: Nigeria SAM, 2014.

Furthermore, Fig.13 presents the consumption patterns of different households (HRR, HRP, HUR, and HUP). The data show that both the rural poor household and poor urban household spend more on crop production such that it accounted for 70.2 percent and 33.6 percent respectively of their disposable income earned from their factor inputs endowment which is usually the labour and capital factor. Considering the rich household, the rural rich household spends about 27.5 percent on crop production, whereas the urban rich household spends 7.4 percent. This shows that rural households seek to spend on food. The urban-rich household spends the most on trading and wholesale with 34.4 percent, followed by rural-rich household 22.5 percent, and then the urban-poor household. The rural-poor household spends the least on trading and wholesale with 8.6 percent of their income. Therefore, the rural household pattern of consumption tends towards agriculture, whereas the urban household commits more resources to services and less on food based on their income.

The 2014 Nigeria SAM shows that the Nigerian Government derived her revenue from direct taxes levied on the households and firms (corporate tax, 30 percent), indirect taxes, excise duties as well as the import taxes levied on imported commodities from the trading partners. For instance, the SAM shows that about 38.9 percent of revenue from import taxes comes from commodities imported from the EU, followed by China, Other Asian countries, Rest of the world and US with 24.8 percent, 16.6 percent, 13.4 percent, and 1.5 percent respectively as depicted in Figure 14. The revenue share from African countries is relatively small yet the other West African regions have the largest share of 0.83 percent considering the African regions. The import tax revenue from North Africa (NAFR), East Africa (EAFR), Central Africa (CAFR) regions and South Africa (SA) accounted for 0.78 percent, 0.76 percent, 0.74 percent, and 0.57 percent, respectively. Therefore, bulk of the import tax accrued to the Nigerian government is associated with other countries (UE, CHA, US, ROW) of the world outside African regions altogether.

Fig. 14. Nigeria import tax revenue
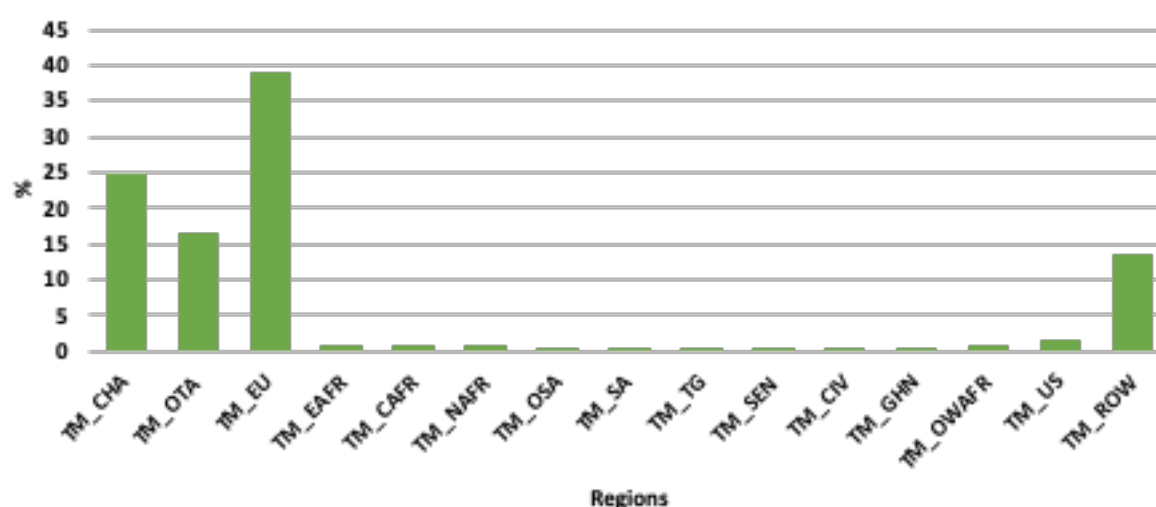
Source: Nigeria SAM, 2014.

Value-added

The combination of the returns to various factor inputs available in Nigeria constitutes the value-added. This is a vital component of the Nigeria SAM. It clearly reflects the various contributions of labour and capital in the value chain as presented in Figure 16. Capital is seen to have contributed significantly towards the huge value added witnessed in the crop production. This is attributed to the facts that land is treated as a form of capital, which is owned by farmers with low labour inputs. On the other hand, the extractive sector (Crude oil, natural gas, and mining) has the highest share of labour in value-added. The reason for this outcome might be attributed to higher compensation and rents accrued to the employees in that sector.

Fig. 16. Sectoral value-added
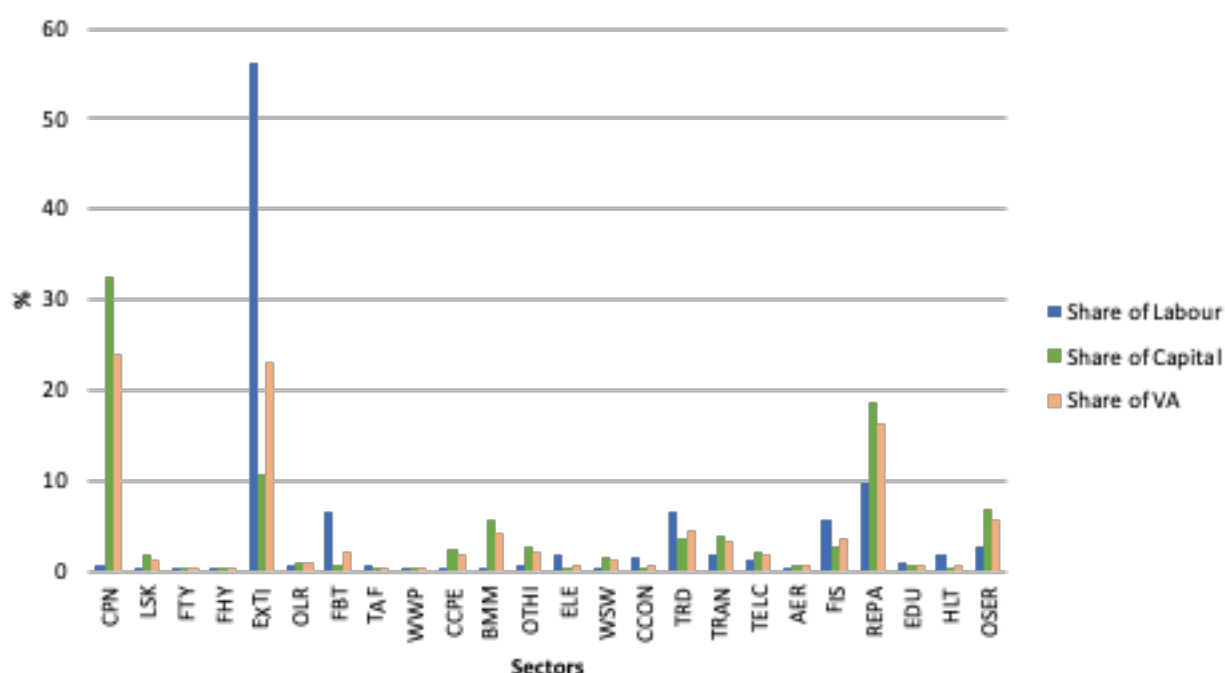
In summary, this section has explored the salient features in the Nigeria 2014 SAM. The SAM is trade-focused and exhibited some regional traits. The regions were identified based on major Nigeria trade partners necessary for this study. The SAM is built to serve as the database and benchmark for the evaluation of the impact of AfCFTA on the Nigerian economy.

5.2. Model Description

A recursive-dynamic CGE model of the Nigerian economy, which draws from Decaluwe et al., (2012), was developed for this study. The model which accounts for some peculiar features of the economy was designed to capture the dynamic impacts of the AfCFTA since the implementation of the agreements will be spread over a period of time (10 years, precisely). However, one benefit of the model is that it can estimate a longer period effect of policy changes that occur in the ten-year period. In this regard, the time dimension was explicitly incorporated in the model. The model does not involve any intertemporal or truly dynamic optimization behavioural assumption but rather recursive optimization, characterized by a sequence of temporary equilibria. Thus, it is possible to separate the within-period component from the between-period component, where the latter governs the dynamics of the model. This is, however, consistent with the context of developing countries where imperfect information exists.

5.3. Model Blocks

The model has eight blocks: production, income and savings, demand, international trade, prices, equilibrium, dynamic equations, and other variables blocks. For ease of appreciation, only salient features of the model are discussed in this report.

The production procedure is divided into two stages (see Figure 17). At the bottom stage, it is assumed that value added (or composite primary factor) is produced from labour and capital with the Constant Elasticity of Substitution (CES) type production technology, while at the top stage, it is assumed that gross outputs are made from the value added and intermediate inputs with Leontief type production technology.

Fig. 17. Nested Production Function

Fig. 17. Nested Production Function
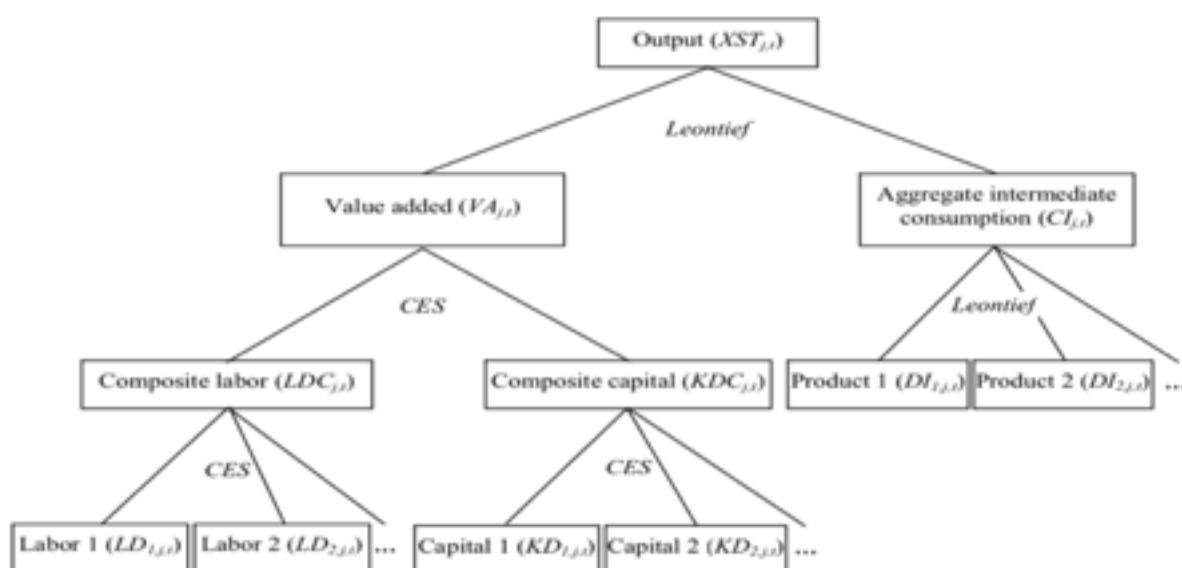
Firms are assumed to operate in a perfectly competitive environment. This leads to each industry's representative firm maximizing profits subject to its production technology, while it considers the prices of goods and services, as well as factors as given (price-taking behaviour). The use of primary factors by firms is in variable proportions and substitution function follows a CES function. The CES function, therefore, suggests that available techniques permit the aggregate mix between value-added and intermediate inputs to vary. These inputs are further combined with intermediate goods and used in fixed proportions (Leontief function).

Value addition must first occur before inputs can be converted into sectoral output and the transformation function here takes the CET form. The sectoral output is shared between the foreign market and the domestic market. While the domestic market is the source of demand for local supply of products by sectors, the rest of the world accounts for the demand for exports of products by sectors. Foreign demand is modelled using the constant elasticity of demand function. Demand for goods and services, whether domestically produced or imported, consists of intermediate demand, household consumption demand, investment demand, demand by public administrations, and demand as transport or trade margins.

The representative household is assumed to maximize its utility by choosing its level of consumption of the commodities in the economy, subject to its income constraints and prevailing commodity prices. A characteristic of the utility functions is that there is a minimum level of consumption of each commodity (which may be zero for some commodities). Investment demand includes both Gross Fixed Capital Formation (GFCF) and changes in inventories.

The two components of investment demand are quite different. In particular, GFCF cannot be negative (even though net investment, that is, gross investment minus depreciation, maybe), whereas changes in inventories in the NSAM may be positive or negative. Trade and transport margins (rates) are applied to the value of domestic production and imports to determine the quantities of these margin services required to distribute commodities to buyers. Government consumption expenditure is another source of final demand. Firms generate final demand via its demand for intermediate inputs. Government and firm's final demand exist in fixed quantities.

The model is designed in view of Nigeria's trade relation in Africa and some countries/regions of the world. Therefore, there are fifteen rest of the world (ROW) account in the model. Accordingly, there are fifteen sources of government receipts of import taxes on commodities in the model, based on country of origin. Similarly, sources of government revenue from export taxes on exported commodities have been accounted for in line with the ROW account.

The small-country hypothesis is adopted, in the sense that the world price of traded goods (imports and exports) is exogenous. Some considerations about the substitutability among imported, exported, and domestically supplied good were made. If exported goods are perfectly substitutable with imported ones, then the problem caused by two-way trade in actual trade statistics is inescapable. To resolve this problem, exported goods are regarded as imperfect substitutes for imported ones even though they are statistically classified into the same category.

An aggregation stage is assumed in order to treat imports and domestic goods as different goods, and a disaggregation stage for exports and domestic goods. As a result, imports and domestically supplied goods are aggregated to be (Armington's) composite goods – used for intermediate inputs and domestic final demand. The economy is assumed to be a single open economy with respect to import markets. As a result, no re-export of imported goods is allowed in this economy also. It is assumed that imports are imperfectly substitutable with domestic goods; that is, the goods are heterogeneous with respect to their origin. The imperfect substitutability between the two is expressed with a CES type production function.

At another level, producers are considered to transform gross outputs into exports and domestic goods. These exportable goods are also assumed to be imperfectly transformable to domestic goods and represented by means of a constant elasticity of transformation (CET) production technology. The imperfect substitutability between the two is expressed with a CES type production function.

World prices of imports are assumed fixed in the model. Typical policy distortions exist, and these include tariffs and other trade taxes/subsidies, production taxes, consumption taxes and factor taxes. These distortions tend to exert upward or downward pressures (as the case may be) on the value-added price of sectors. Exporting industries have the possibility of selling their output on the international market or the domestic market. So, the price of their aggregate production is a weighted sum of the price obtained on each market, following the price aggregation principle. The weight assigned to each market is proportional to the quantity sold on that market. These weights vary in response to relative price changes, more or less sharply, depending on the elasticity of transformation in the CET.

5.4. System Dynamics and Model Closure

Dynamic assignments constitute the link from one period to the next. While one set of equations update variables that grow at a constant rate per period, the other equations control the accumulation of capital. A 10-year projection period broken down into two periods of five years each is adapted for simulation purposes. We assume that the economy follows a balanced growth path - meaning that all quantities grow at a constant rate, while relative prices remain constant. The assumption of a balanced growth path is useful in the business-as-usual (BAU) scenario, and for testing model consistency.

The equilibrium results of the model and their implications with respect to policy analysis depend on how the model is closed. For this study, the choice of closure is informed by economic considerations as well as the context of the analysis.

5.5. Factor and Goods Market Closure

Labour supply is held fixed and assumed to be mobile across sectors. Thus, the wage is allowed to adjust to clear the market (neoclassical closure). On the other hand, capital is fixed in the first period but mobile afterwards. As a result, the return to capital is determined endogenously in the model to clear the market for capital supply.

Equilibrium in the goods market requires that the demand for commodities equal to supply. This equilibrium is attained through the endogenous interaction of domestic and foreign prices, as well as the effects that shifts in relative prices have on sectoral production and employment, including institutional incomes and demand.

5.6. Macroeconomic Closures

Macroeconomic closures determine how macro-equilibrium is reached after the tariff elimination. The model includes three broad macroeconomic accounts: the current account, the government balance, and the savings and investment account.

In the model, the nominal exchange rate is chosen as numeraire. Thus, changes in domestic price indices can be interpreted as changes in domestic prices relative to world prices which have been fixed in the model. Given that the nominal exchange rate is treated as exogenous, the current account is fixed directly, and foreign savings are allowed to adjust endogenously to ensure external balance. It has been argued that measures of economic welfare based on household consumption become invalid if the current account is free (since borrowing funds increases consumption in the current period, and no provision is made in the model for paying the debt back).

In the government account, the government expenditure is fixed in real terms, as well as all tax rates. As a result, the balance on the government budget is assumed to adjust to ensure that public expenditures equal revenue.

As regards savings-investment closure, the model adopts a savings-driven closure, in which the saving rates of domestic institutions are fixed, and investment passively adjusts to ensure that savings rate equals investment spending in equilibrium. This is unlike the more Keynesian view which reverses the causality found in neoclassical theory by arguing that investment is exogenous and that savings adjust to clear the market. Arguably, as most households in Nigeria are poor and more unlikely to increase savings in order to fund future investment, a savings-driven closure appears more appropriate for this study.

5.7. Simulation Scenarios

Given that the AfCFTA has as part of its objectives the progressive elimination of tariffs and non-tariff barriers as well as the progressive liberalization of trade in services; the implementation of the agreements will be spread over a 10-year period. The simulations considered are:

Table. 6. Simulation Scenarios

Scenarios	Explanation	Period 1	Government
Simulation 1	Linear cut in tariff	50%	50%
Simulation 2a	Front- loading tariff liberalization	70%	30%
Simulation 2b	Back-loading tariff liberalization	30%	70%
Simulation 3	Linear cut tariff + 10% special products	45%	45%
Simulation 4	Linear tariff cut + 10% increase in government investment	50% + 10% ↑in G investment	50% + 10% ↑in G investment
Simulation 5	Linear tariff cut + 5% increase in labour supply+ 5% increase in foreign capital inflow	50% + 5% ↑in LS + 5%↑ in FS	50% + 5% ↑in LS + 5%↑ in FS

6. Results and Discussion

The simulation results and their discussions are presented in this section. Details of all results are in the annexe to this report. Values reported under periods 1 and 2 of each simulation represent the average percentage change in variable value over the first five years and the second five years respectively, of the AfCFTA implementation period.

6.1. Macroeconomic and Sectoral Effects

Output Effect

- A complete elimination of tariffs, phased over 10 years, will result to a 0.02 percent decrease in GDP in the first period and then a 0.05 percent decrease in GDP in the second period. Even when the tariff elimination is front-loaded or back-loaded, GDP will still decrease by 0.01 percent and 0.03 percent respectively in the first period, and 0.04 percent and 0.05 percent respectively in the second period. The decline in GDP may be due to the significant decline in total investment as well as a fall in sectoral outputs (see discussion on sectoral output and Table 6.2). A similar pattern of decrease in GDP is also observed when sensitive products (mainly agricultural and manufactured goods) are protected from trade liberalization. In this case, GDP is expected to decrease by 0.02 percent and 0.04 percent in the first and second periods respectively (Figure 18a).

- GDP is, however, expected to increase by 0.57 percent and 0.07 percent in the first and second periods respectively when government intervention (10 percent increase in government expenditure combined with linear cuts in tariffs) is simulated. Assuming trade liberalization attracts foreign saving and labour factor - implemented by applying a 5 percent exogenous increase in foreign investment and in labour supply is implemented, the impact on GDP is positive, as the economy is expected to grow by 1.77 percent and 1.62 percent in the first and second periods respectively (see Figure 18b).

Fig. 18a. Macroeconomic Effects for Period 1 (A)
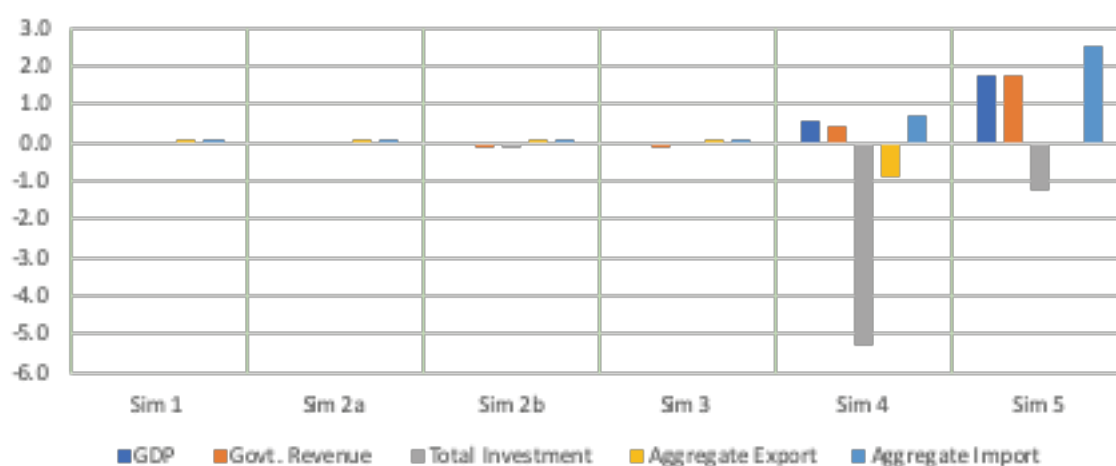
Macroeconomic Effects for Period 2 (B)

Investment Effect

As noted earlier (and as shown in Figure 18a above), investment is expected to decline in all simulations. The least negative impact on investment is observed when considerations are made for sensitive products during the implementation of the AfCFTA. With the exclusion of sensitive products (SIM 3), the total investment is expected to decline by 0.15 percent compared with 0.16 percent when there are no considerations for an exclusive list (as in SIM 1, 2a and 2b).

• The negative effects on investments are, however, more pronounced (up to 5.82 percent) when the government increases its spending by 10 percent (SIM4). This is expected as the increase in government expenditure reduces the aggregate savings in the economy. Interestingly, even when foreign investment inflows and increase labour supply are expected, total investment still declined by 1.4 percent in the second period of the AfCFTA implementation.

• An intuitive explanation for the expected decline in investment is that the choice of investment destinations will become more competitive with the AfCFTA implementation. This is because enterprises will be able to produce in any African economy they perceive as having the best investment climate and trade their products freely in other African economies with the desired market.

Government Revenue

Government revenue declined in all but one of the scenarios of the AfCFTA, when foreign investment inflow and increased labour supply is assumed. Government revenue declined by 0.21 percent when linear cuts to the tariff cut are applied and when the tariff cut is backloaded. The decline in government revenue is only marginally lower (0.20 percent) when the tariff cut is front loaded. However, during the first period, when the government is assumed to increase its investment by 10 percent, government revenue increased by 0.42 percent before declining by 0.13 percent. The losses in government revenue are more likely to have resulted from the decrease in tariff revenue – as taxes on imports constitutes a major source of government non-oil revenue. It was noted, however, that government revenue was positive in both the first and second period of the AfCFTA implementation when foreign investment inflow and an increase in labour supply was assumed.

Aggregate Export Effect

• If linear cuts are applied to tariff elimination, aggregate export will increase by 0.02 percent in both the first and second five-year implementation periods respectively. If the tariff elimination is back-loaded, aggregate export is expected to increase by 0.01 percent and 0.03 percent in the first and second implementation periods respectively. Even when tariff elimination is front-loaded, aggregate export will still increase by 0.02 percent in both the first and second five-year implementation periods respectively. When sensitive products are

protected from tariff cuts, aggregate export will also increase by 0.02 percent in both the first and second five-year implementation periods respectively.

- The increase in aggregate export will be insufficient to compensate the economy for the loss in total investment. The increase in aggregate export simulations 1, 2a, 2b and 3 may be reflective of increased market access for Nigerian businesses as depicted in the sectoral export results (Table 6.2). Export of textiles, apparel and footwear especially woven fabrics of cotton and textile yarn and thread of natural fibres will be the most significant export commodity, followed by chemical, chemical products, electrical products, then basic metals and motor vehicles.

- However, it was noted that aggregate export will decrease dramatically by up to 0.90 percent and 1.96 percent when the government increases its spending by 10 percent. If the liberalization strategy assumes inflow of foreign investment and an increase in labour supply, aggregate export is expected to decrease by 0.05 percent and 0.37 percent in the first and second five-year implementation periods respectively.

Aggregate Import Effect

Expectedly, aggregate import showed positive results in all simulation scenarios. The increase in import was 0.12 percent (on the average, in the second period), when tariff cut was linear, front loaded or back loaded, and when some sensitive products are excluded from the tariff cut. Import effects are higher (0.61 percent) with an increase in government spending and 2.45 percent when investments flow into the country. The increase in import is expected following the elimination of tariff which leads to lower import prices.

Effect on Prices

Tariff cuts are in general expected to exert downward pressure on prices. These will include consumer price, producer price, price of intermediate consumption, and factor prices. This reduction in prices can then be converted into welfare gains in the economy. As shown in Figure 19a, consumer prices will be in decline throughout the AfCTFA ten-year implementation period if any of the SIM1 – SIM3 is applied. What this means is that consumers of goods and services are expected to pay less for the same quantity of goods and services Nigeria joins the Continental Free Trade Area. However, consumer prices will increase in general if the trade liberalization strategy applied will include ten percent exogenous increase in government expenditure or some five percent exogenous increase in labour supply and foreign capital inflow. This way, the welfare gains that are observable in the first four scenarios are easily offset by the injection of resources into the economy at least, throughout the AfCFTA implementation period.

Fig. 19a. Effects of Tariff cuts on Consumer Prices
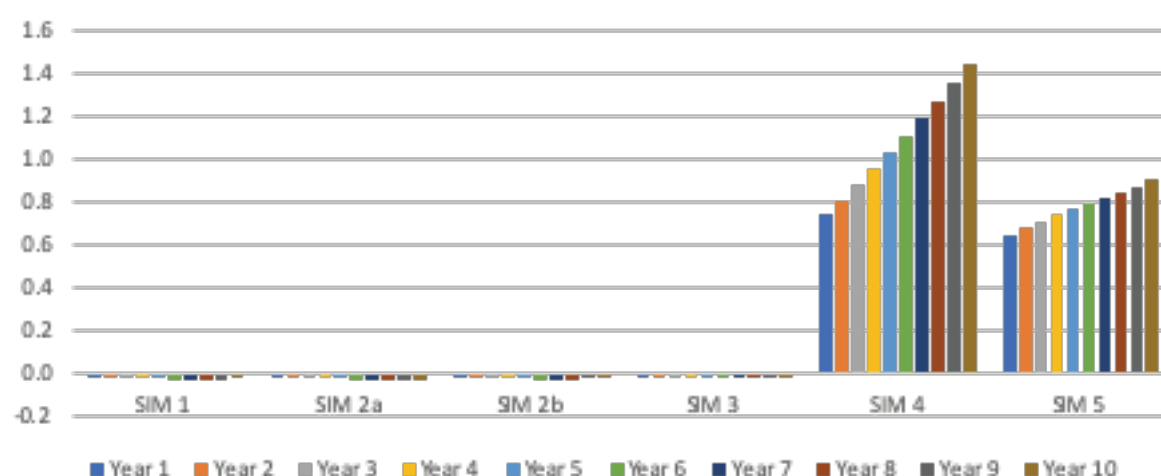
Fig. 19b. Effects of tariff cut on price of intermediate consumption
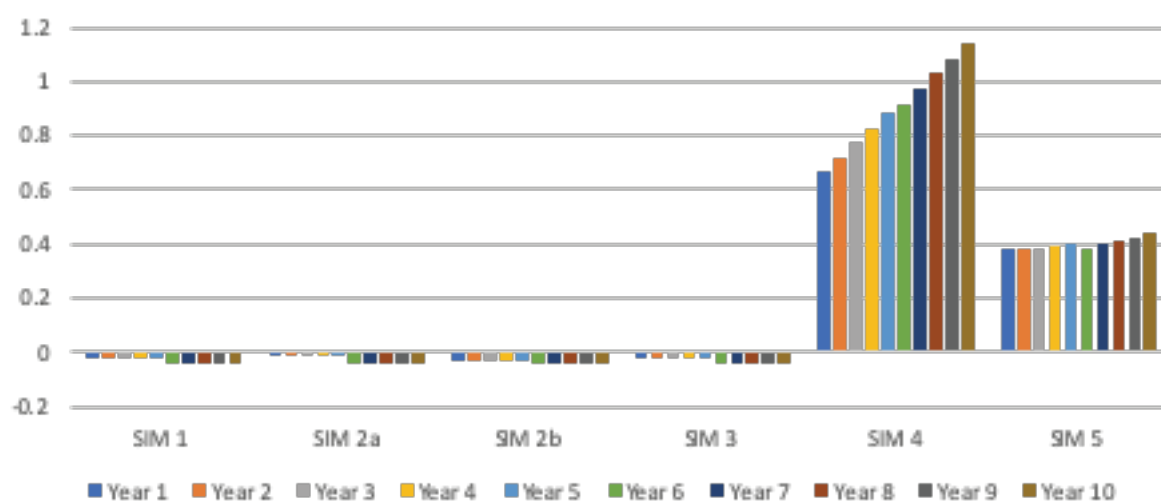
A similar pattern is observable on the prices of intermediate consumption as shown in Figure 19b. Tariff cuts are expected to compel a decrease in prices of intermediate consumption over the first-four simulation scenarios and throughout the ten-year AfCFTA implementation period. The expected decrease in prices of intermediate consumption will range from 0.012 percent in SIM2a to 0.044 percent in SIM1 and SIM2a. What this means is that producers will be able to source their inputs more cheaply, if Nigeria joins the AfCFTA. Cheaper prices of intermediate consumption can further explain the expected decrease in consumer prices. Just as observed in the case of consumer prices, prices of intermediate consumption will increase in general if the applicable trade liberalization strategy includes a ten percent exogenous increase in government expenditure or some five percent exogenous increase in labour supply and foreign capital inflow.

Tariff cuts are also expected to depress factor prices. Figure 19c for example shows that wage rate will decline in general by up to 0.074 percent in SIM2a period 2, if the trade liberalization strategy adopted by the country under the AfCFTA follows SIM1 – SIM4, or SIM 5. But will increase if the strategy includes injection of government investment. A similar pattern is observed in Figure 18d where the price of capital will decrease in general under SIM1 – SIM4 and increase in SIM5 and SIM6 by as much as 0.66 percent in SIM4 period 2.

Fig. 19c. Effects of tariff cuts on wage rates
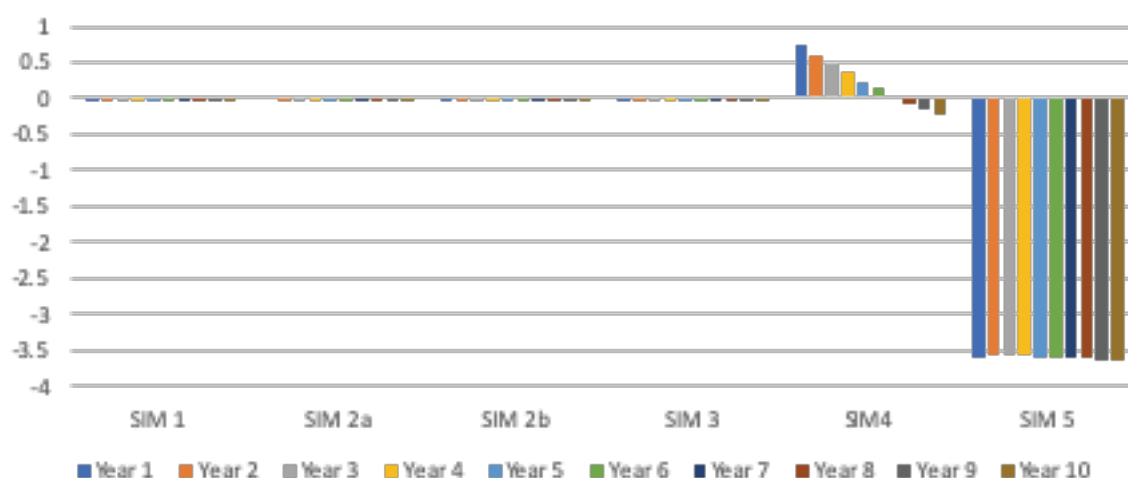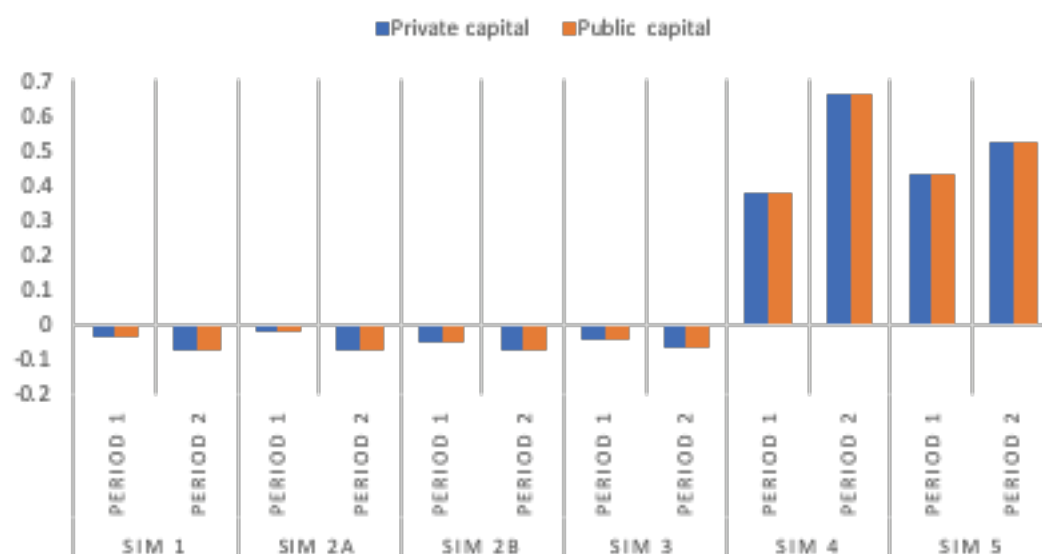
The trend observed in factor prices is suggestive of a trade-off between prices of commodities and prices of factors. The implication of these results is that, while the tariff effect on commodity prices tend to be welfare-enhancing, the effect on wage rate appears to be welfare-decreasing.

6.2. Sectoral Effects

Output, Imports, and Exports

• The simulation results (Table 6.2) showed that most sectors in the economy recorded some output losses. These losses are more prominent in activities sectors when government intervenes by increasing its expenditure by 10 percent. For instance, while the loss in output was negligible in simulations 1 to 3, they were as high as 4.8 percent and 4.3 percent in sectors like wood products and cement and construction respectively in simulation 4. Only a few sectors in the service industry like transport, telecommunication, education and health recorded increase in output.

• Imports by the various sectors showed mixed results (Table 6.3). Some sectors like the agricultural sub-sectors (except for forestry), food, beverage and tobacco sector, textile, apparel and footwear, basic metal and motor vehicle all showed an increase in imports in all simulation scenarios.

• Imports of food, beverage and tobacco will increase by 0.21 percent, 0.12 percent, 0.30 percent, 0.24 percent, 1.37 percent, and 1.19 percent in simulations 1 to 5 respectively. In this corresponding order, other utilities including water and waste management will increase only negligibly in the first three scenarios while it will increase by 5.91 percent, and 8.57 percent when government increases its expenditure by 10 percent and when foreign investment inflow is assumed, respectively. Textile, apparel and footwear import will also increase by 0.08 percent, 0.05 percent, 0.12 percent, 0.09 percent, 0.20 percent, and 1.91 percent; while import of commodities in the crop sub-sector is expected to increase by 0.23 percent, 0.14 percent, 0.33 percent, 0.25 percent, 1.83 percent, and 4.23 percent.

• This finding is not unexpected given the size of the country's import, which predominantly comprises manufactured goods, crops, fishery, extractive industry products other petroleum products, as well as agriculture and raw materials. The basic intuition from these results is that removal of tariffs is a disincentive for domestic production, especially where imported commodities become cheaper, thus, raising the demand for imports. Wood products, cement and construction, however, recorded a decline in imports in all simulations, while

the services sector recorded decline in imports only when tariff cut is linear, front loaded and back loaded.

Factors Market Effect

•   The demand for labour is expected to experience significant decrease in most sectors of the economy. A cursory look at Table 6.5 of Annex 2 reveals that the construction and cement sector will suffer the greatest decline in factor demand following the implementation of AfCFTA by the country. The demand for labour in the wood and wood products sectors will decrease considerably by an average of about 1.12 percent under each simulation. Demand for labour in the chemical, chemical products and electrical subsector, will also decrease by an average of 0.45 percent under each simulation. However, the demand for labour in the education sector will record a positive change over the AfCFTA implementation period.

•   On the effects of the tariff elimination as proposed in the AfCFTA on factors of production, it should be recalled that, the model assumes labour to be mobile across sectors, thus, eliminating the possibilities of unemployment in the long-run equilibrium as wage is allowed to adjust to clear the market. Also, capital is immobile but only in the first period. These assumptions have implications for the outcomes of the tariff shock on returns to factors as well as their demand which then explains the output effects.

•   It is observed that the demand for labour in the agricultural sector will fall in the first period across all simulation scenarios by 0.003 percent, 0.002 percent, 0.004 percent, 0.003 percent, 0.68 percent respectively and will only increase by 0.24 percent after tariff cut is combined with government intervention in the fifth simulation. The wood and wood products subsector's demand for labour, with an average decline of 0.81 percent in all six simulations, will be one of the most adversely affected. Of course, demand for labour will also decline considerably in all other sectors except education.

•   Unlike demand for labour factor input, demand for capital (see Annex 2, Table 6.6) is expected to increase in most sectors of the Nigerian economy. The only exceptions will include cement and construction sector, chemical, chemical products and electrical, wood and wood products, and livestock (in SIM4). However, the decline in capital demand in most of the sectors will be smaller than the decline in labour demand. Interestingly, the decline in capital demand will be more prominent in the chemical, chemical products and electrical subsector just as it was in the demand for labour.

•   The implication of the expected decrease in factor demand can be explained by the likely disincentive to domestic production resulting from cheaper imports due to the tariff cut. Consequently, due to the impact of the tariff shock on domestic production, the return to factors and, hence, their demand shifts.

6.3.   Households Effects

•   The effect of the AfCFTA on households are transmitted through changes in factor income as well as transfer income from government and the rest of the world. Thus, reallocation of factors among sectors and substitution of factors within sectors due to shifts in demand for factors resulting from the change in tariff policy affects household welfare.

•   The simulation results (simulations 1-3) indicate that the AfCFTA tariff liberalization will cause a negligible decline in household's income (see Annex 2, Table 6.7). The decline in household's income will be more severe for the rural rich households and urban rich households. The poor households in both urban and rural households will only experience a marginal decrease in income (averaging about 0.01 percent for both rural poor households and urban poor households). The expected decrease in income of rural and urban rich households will average about 0.02 percent for each household type. However, when government intervention and inflow of foreign investment and increase in labour supply are simulated, the tide of negative household income changes will be halted. Under these two scenarios, the increase in household income clearly overwhelms the decrease expected under the first

four scenarios. In all, the expected decrease in household income can be explained by the lowered demand for factors, and hence the compensation for factor demand which normally would accrue to households.

- Moreover, the effect of tariff cuts on factor income is relatively small because factors that are displaced in one or more sectors are absorbed in other sectors, in line with the factor mobility assumption. Interestingly, the effect on household income was driven more by the decline in transfer income – a source of household income, which was negatively affected by the decline in government revenue. In addition, the expected decrease in household income can be explained by the lowered demand for factors, and hence the compensation for factor demand which normally would accrue to households.

Fig. 20a. Effects of Tariff Cuts on Households Income (Scenarios 1, 2a, 2b and 3)
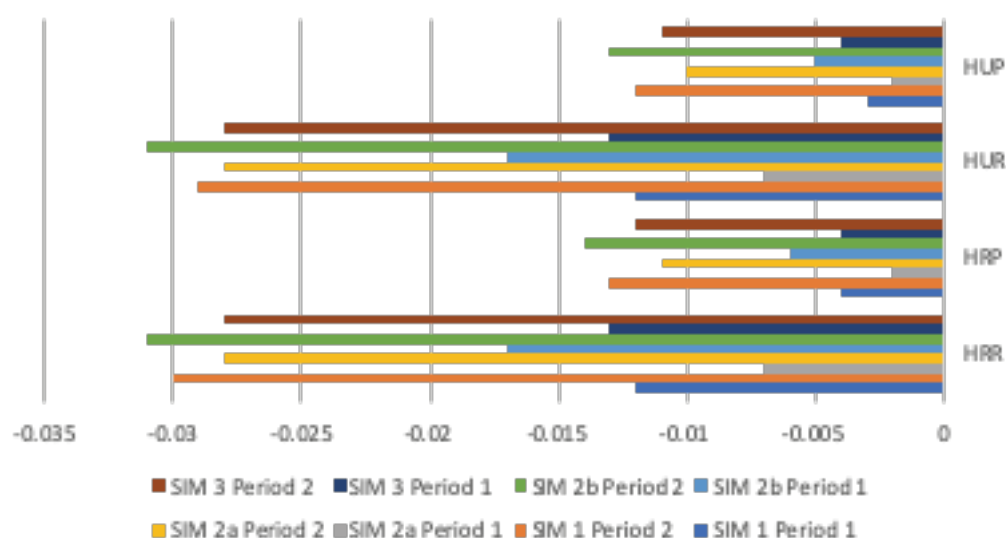
Fig. 20b. Effects of Tariff Cuts on Household Income (Scenarios 4 and 5)
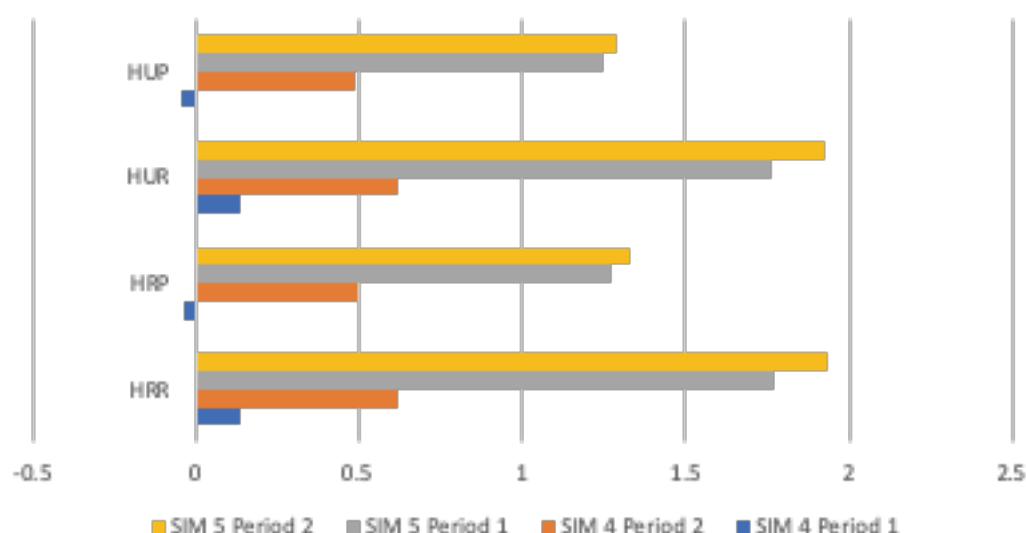
Tariff cuts will impact a household's income differently as depicted in Figures 20a and 20b; depending on the liberalization strategy adopted for the Nigerian economy. If simulation scenario 5 is applied, it will exert the largest positive impact on the household's income in both periods 1 and 2 of the AfCFTA implementation periods. Similarly, simulation scenario 4 will exert a positive

impact on rich households' income in both periods 1 and 2 of the AfCFTA implementation periods. However, assuming tariff cut is linear, front-loaded, back-loaded, or involve the protection of sensitive products from trade liberalization in the two simulation periods; household income in the economy will be impacted negatively.

• The results also indicate that households' consumption will decrease marginally in all sectors; but consumption of some sectoral commodities will increase on aggregate despite the expected slight decline in income, and hence, household consumption budget. For example, consumption of commodities by urban poor households will be affected positively (in many cases) by tariff cuts. The increase in household consumption will be more pronounced in the consumption of extractive industry commodities. The other commodities with a noticeable increase in consumption are health services, electricity as well as refined oil products.

• Urban-poor household consumption of the above commodities is expected to increase considerably during the AfCFTA implementation period as depicted in Annex 2, Table 6.8. However, urban-poor household consumption of water and waste management commodities as well as forestry products will decrease marginally. The availability of cheaper imported goods even in the presence of a slight decline in household income; and the exogenous increase in government expenditure will be the explanation for the positive changes expected in urban poor household's consumption of most commodities following implementation of the AfCFTA.

• This finding, which implies that households are unwilling to reduce their consumption because of a small negative shock to their income, is not unusual. This is because the purchase price of composite commodities declined by 0.03 percent, on average. As a result, households are able to buy more goods and services because of the fall in price. It was noted that urban households increased their consumption more than rural households. Again, this can be explained by the differences in income level between the two household categories.

• The case of the urban-rich household consumption of commodities (see Annex 2, Table 6.9) is slightly different from those of the urban-poor households. Urban-rich household consumption of commodities is observed to be generally in decline (if SIM1 – SIM3 are considered) with the exception of a few commodities. The consumption of water and waste management will be worst affected here. However, urban-rich household consumption of textiles, apparel and footwear; chemicals, chemical products and electricals, as well as basic metals and motor vehicles is expected to increase. It is of course not surprising that the Urban-rich households experience a greater decline in consumption of commodities than urban poor households given that urban rich households suffered greater income loss than urban poor households following AfCFTA implementation in Nigeria.

• Rural-poor household consumption of commodities (see Annex 2, Table 6.10) follows a similar pattern to that of the urban poor households. Consumption of commodities is expected to increase for this household group across sectors and simulation scenarios. The major driver of the surge in consumption being household consumption of textiles, apparel and footwear; chemicals, chemical products and electrical, as well as basic metals and motor vehicles. However, just like it was in the case of an urban-rich household, consumption of water and waste management will decrease. The availability of cheaper imported goods even in the presence of a slight decline in household income may again be the explanation for the positive changes expected in rural poor household's consumption of commodities following implementation of the AfCFTA.

• Rural-rich households' consumption of commodities (see Annex 2, Table 6.11) exhibit a similar pattern to that of the urban rich households. Consumption of commodities here is observed to be generally in decline with the consumption of water and waste management being the worst affected. However, rural rich household consumption of textiles, apparel and footwear; chemicals, chemical products and electrical, as well as basic metals and motor vehicles is expected to increase just like it increased with the other households' types. It is also important to note that household income is expected to increase mainly when SIM4 and SIM5 are applied.

- It is of course not surprising that the rural-rich households will experience a greater decline in consumption of commodities than rural poor households given that rural rich households suffered greater income loss than rural poor households following AfCFTA implementation in Nigeria.

6.4.   Regional and Rest of the World (ROW) Trade Effects

- Traditionally, the trade impacts of regional economic integration in a static sense or argument can occur in two main forms: trade-creation and trade-diversion. Trade-creation is welfare-enhancing and occurs when integration leads to new trade flows that replace high-cost domestic production. Trade-diversion is welfare-depleting and occurs when imports shift away from more efficient (low-cost) global suppliers towards less efficient (high-cost) regional partners. The results indicate that the AfCFTA implementation will be trade-diverting as Nigeria's imports from non-African countries are substituted by imports from African countries. Trade-diversion will be more prominent in Nigeria's imports from West African countries and South Africa. Overall, Nigeria's intra-African trade is expected to increase. The trade, however, will tend to skew towards imports especially from some West African countries like Cote d'Ivoire, Senegal, Ghana and Togo. Imports from South Africa are also expected to increase.

- The main commodities of import will be agriculture-based, especially crops and fishery products. Imports from non-African countries are expected to experience some decline. It will be important to quickly remark here that while promoting intra-Africa trade is imperative, the objective of AfCFTA is not to increase intra-Africa trade only, but rather, to enhance trade both within the African region and more importantly, with the rest of the world. The danger of promoting intra-Africa trade alone is that it would easily lead to a trade-off that favour a relatively small regional market (in terms of its share of world GDP) at the expense of a market represented by the rest of the world which constitutes a large share of world GDP. The goal of Nigeria, therefore, should be to strategically integrate the Nigerian economy into both the African market and at the same time, be better connected to global markets.

- With regards to exports, Nigeria's export to Africa and non-African countries is expected to increase marginally. Improvements in exports to North Africa, Central Africa and West Africa regions (especially, Cote d'Ivoire and Ghana) and South Africa are also expected. It should be noted that the increase in imports to or exports from African countries does not imply that they become major trading partners as the volume and value of trade remain key determinants.

- Results of the potential impact of full trade liberalization under the AfCFTA on Nigeria's imports (see Annex 2, Table 6.12) and exports are also explored. The result indicates that Nigeria's imports from Cote D'Ivoire will be most impacted positively with a surge in imports of about 3.69 percent, 3.20 percent, 4.19 percent, 3.62 percent, 4.46 percent, and 6.46 percent on the average (when tariff cut is linear, front-loaded, back-loaded, exclude sensitive goods, involve government intervention, and applies foreign investment and increase in labour supply respectively) over the 10-year AfCFTA implementation period. The top-three commodities that will drive the observed potential increase in imports from Cote d'Ivoire are extra-industry goods, crops and fishery products. Increase in imports of these three commodity groups is expected to be about 8 percent on the average over the 10-year AfCFTA implementation period. Nigeria's imports from the other South African trading bloc will be least impacted positively by tariff cut. The increase in Nigeria's import from this trading group will be 2.79 percent, 2.41 percent, 3.17 percent, 2.77 percent, 3.35 percent, 5.39 percent when tariff cut is linear, front-loaded, back-loaded, exclude sensitive goods, involve government intervention, and applies foreign investment and increase in labour supply respectively.

Fig. 21. AFCFTA Impact on Nigeria's Import for Six Scenarios (Intra-Africa Trade)
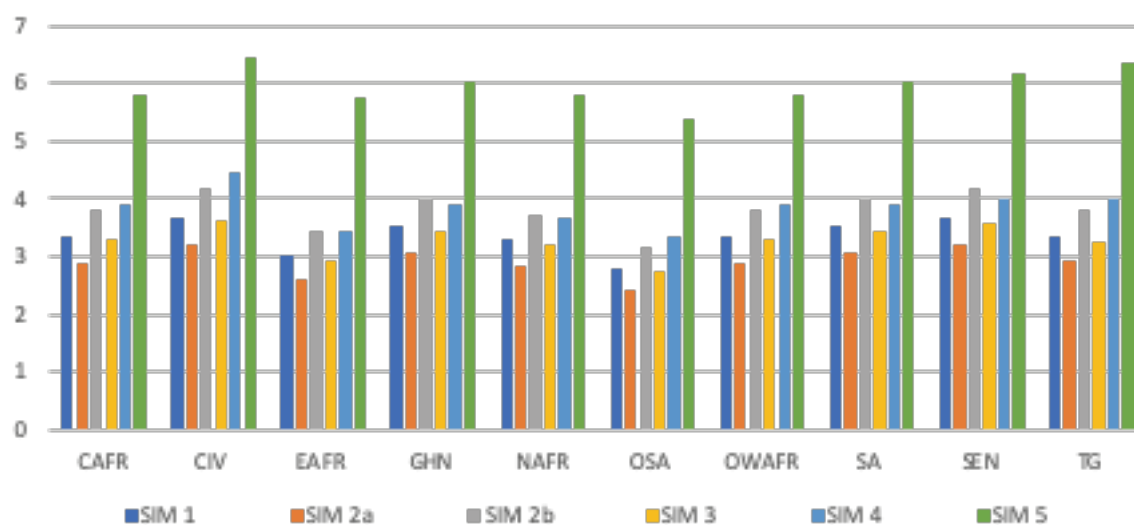
Fig. 22a. AFCFTA Impact on Nigeria's Import (Outside Africa Trade Partners)
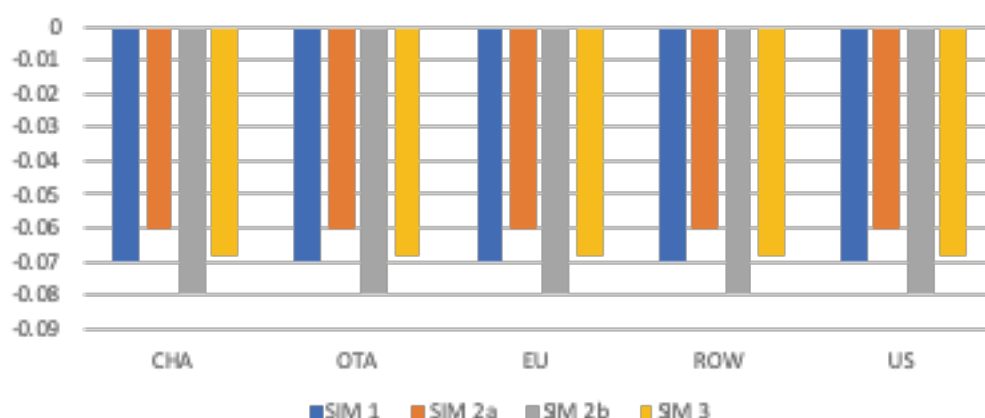
Fig. 22b. AFCFTA Impact on Nigeria's Import (Outside Africa Trade Partners)
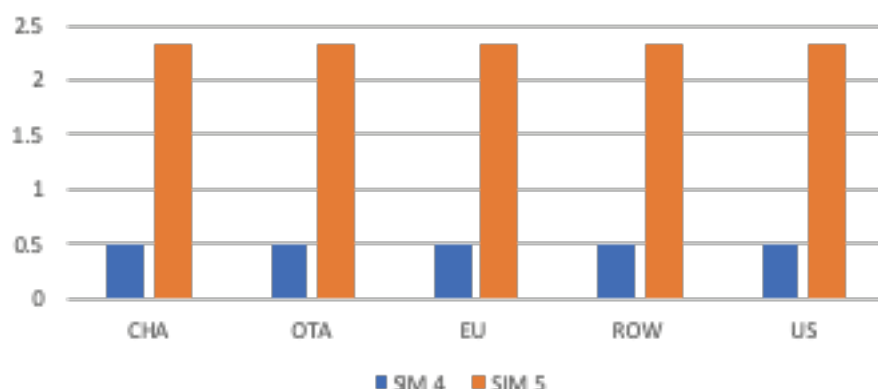
Nigeria's imports from the other ROW (non-African countries) will in general, be negatively impacted by AfCFTA implementation as shown in Figure 22a. The detailed results are reported in Annex 2, Table 6.12. The result shows that the decrease in Nigeria's imports from the other ROW will be about -0.07 percent, -0.06 percent, -0.08 percent, -0.07 percent, 0.51 percent, and 2.32 percent on the average (applying linear, front-loaded, back-loaded tariff cuts, as well as when tariff cut exclude sensitive goods, involve government intervention, and applies foreign

investment and increase in labour supply respectively) for the 10-year AfCFTA implementation period. As stated earlier, the expected trade-off between imports from African countries and non-African countries is suggestive of some form of trade-diversion expected to accompany AfCFTA implementation in the country.

Considering the results of the expected changes in Nigeria's exports (see Annex 2, Table 6.13), just like imports, the outlook is positive (when SIM1 – SIM3 is applied) for Nigeria's exports to all her major trading partners across the globe. Export to the North African region will be impacted positively the most with a surge of about 0.022 percent, 0.020 percent, 0.024 percent, and 0.021 percent (applying linear, front-loaded, back-loaded tariff cuts, and include protection of sensitive goods respectively). However, Nigeria's export to North Africa decreases by -1.43 percent and -0.25 percent when tariff cut involves government intervention and applies the increase in foreign investment and increase in labour supply respectively) over the 10-year AfCFTA implementation period. A common feature of Nigeria's exports to all her major trading partners across the globe is that it will increase under SIM1 – SIM3, and decrease under SIM4 and SIM5.

Fig. 23a. AFCFTA Impact on Nigeria's (Intra-Africa Trade Partners)
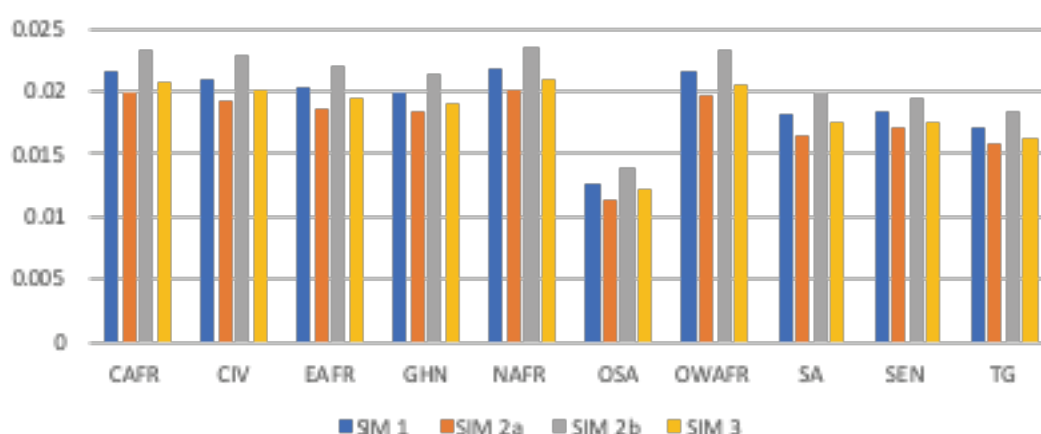
Fig. 23b. AFCFTA Impact on Nigeria's (Intra-Africa Trade Partners)

The major export commodities that are expected to drive export to the North African region include Textile, Apparel and Footwear as well as Chemical, Chemical Products and Electrical Appliances. Each of these commodities will account for approximately 0.07 percent of the average increase in Nigeria's exports to North Africa.

Fig. 24a. AFCFTA Impact on Nigeria's Export (Outside-Africa Trade Partners, Sim 1-3)
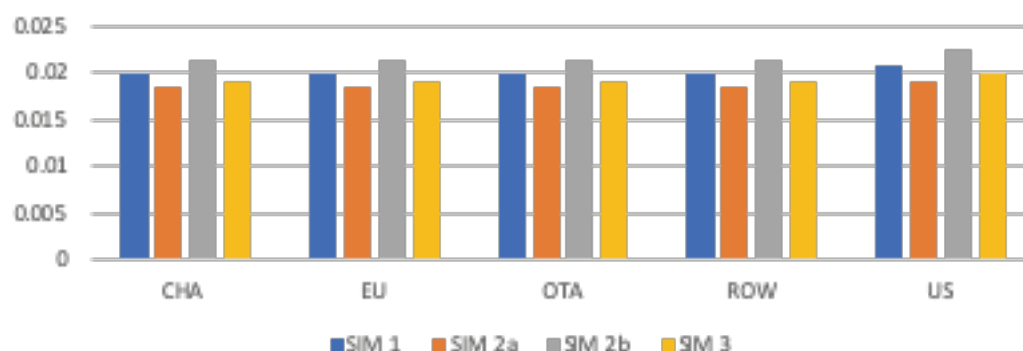
Fig. 24b. AFCFTA Impact on Nigeria's Export (Outside-Africa Trade Partners, Sim 4 and 5)
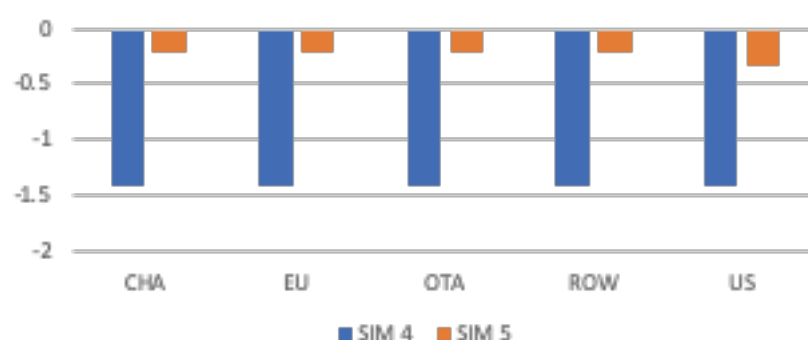
Nigeria's exports to the other Southern African region will be least impacted positively with an average percentage increase of about 0.013 percent, 0.011 percent, 0.014 percent, 0.012 percent, -1.56 percent, and -0.30 percent (applying linear, front-loaded, back-loaded tariff cuts, as well as when tariff cut exclude sensitive goods, involve government intervention, and applies an increase in foreign investment and an increase in labour supply respectively) over the 10-year AfCFTA implementation period.

The economic insight from these results can be hinged on the market access argument often made in support of a country's membership in a free trade area. Besides, the expected surge in Nigeria's imports could also make more domestically produced goods available for export to the rest-of-the-world.

It is important to highlight at this point that the results of this study are not farfetched from other similar studies. The expected impact of AfCFTA on economic performance, fiscal and monetary policies on the Nigerian economy represents one such area of similarity. The impact of AfCFTA on key fiscal variables, such as revenue, has been a source of concern to stakeholders. A recent report on the Impact and readiness assessment of the African Continental Free Trade Area (AfCFTA) Agreement includes findings that are largely consistent with findings in this current endeavour. The study revealed that by eliminating import duties on goods from Africa, AfCFTA will have the following effects:

1. Increase the demand for Nigeria's products and services in Africa which will result in an increase in the price of exports and improved margins for Nigerian producers;

2. Reduce government revenue by 1.5 percent, equivalent to N131.6bn per annum due to the loss of revenue from import duties;

3. Increase trade with Africa as goods manufactured in Africa will become cheaper than goods from other continents. But the balance of trade with Africa will deteriorate as the import will grow more (2.75 percent) than exports (0.29 percent) due to lack of local production capacity;

d) reduce prices of consumer goods in the local market, marginally;

4. Gross Domestic Product and government savings will decline by 0.14 percent and 4.8 percent respectively, and f) Household income and consumption will decline marginally by 0.116 percent and 0.084 percent respectively.

5. Household income and consumption will decline marginally by 0.116 percent and 0.084 percent respectively.

7.   Conclusion and Recommendations

7.1   Conclusion

There is no doubt that the African Continental Free Trade Area (AfCFTA) will provide a scope for the expansion of intra-Africa trade if properly implemented. However, the major goal of this study was to assess the potential impact of the AfCFTA on the Nigerian economy. The conclusion of this report will, therefore, be drawn in line with the aim and objectives of the study.

Looking at the potential impact of AfCFTA on key macroeconomic variables in the Nigerian economy, the current state of infrastructure and institutional arrangements in the country will adversely expose the country's GDP to some difficulty irrespective of the trade liberalization strategy adopted by the country. The only likely remedy to the expected loss will be some exogenous intervention by the government or the rest of the world in the form of increased government expenditure or increased inflow of foreign saving/investment in the Nigerian economy. The AfCFTA is also expected to adversely affect government revenue except when trade liberalization is combined with increased inflow of foreign saving/investment in the Nigerian economy.

The sectors that are expected to gain the most in terms of increased average output from AfCFTA implementation if Nigeria joins include health, education, electricity, textile, apparel and footwear as well as transportation sectors. On the flip side, the chemical, chemical products and electrical; wood and wood products; cement and construction sectors are expected to record the greatest losses under the AfCFTA. Nigerian households, in general, are expected to experience a negligible decline in household's income under the AfCFTA. The decline in household's income will be more severe for the rural rich households and urban rich households while the poor households in both urban and rural households will only experience a marginal decrease in income. However, household consumption of the most commodities is expected to increase considerably. The expected increase in household consumption is of course expected to offset the expected decrease in the household's income and increase the overall well-being of Nigerian households. Government intervention, by way of an increase in its infrastructure spending, will no doubt help to minimize potential losses associated with AfCFTA implementation.

Arguably, the AfCFTA represents the most ambitious endeavour of the African Union that is aimed at promoting economic cooperation of the African people. It also represents a bold attempt by the African Union Heads of States and Governments to provide or at the least, experiments with an "African solution" to "an African" problem. Given the huge market potential in Africa, there is a tremendous possibility that AfCFTA will become an African success story. However, the amount of success that is achievable in this "African Project" will depend to a large extent on the quality of preparation infused into the negotiation and implementation of the AfCFTA agreement by African countries.

No doubt, there are opportunities and potential risks associated with the AfCFTA agreement. Trade liberalization optimists, on the one hand, assert that the agreement will strengthen intra-African trade which is currently low, and improve development through the free movement of capital and people. On the other hand, the pessimists are concerned that the agreement will lead to revenue losses and further worsen the fiscal stance of many African countries. Also, foreign competition for domestic firms can reduce demand and profitability which affects productivity. Like every experiment, the stakeholders will always have their fears or concerns about the possible outcome(s). One thing that is certain is that AfCFTA would turn out in one of two outcomes; a win-win outcome for all African countries or a zero-sum game in which case the gain of one country becomes the loss of another or the loss of one country becomes the gain of another.

Overall, this study suggests that just liberalizing trade is not sufficient to maximally benefit from the agreement; this will have to be complemented with increased capital flows and factor mobility. This approach will improve both economic and social outcomes from the implementation of the agreement. Also, there is a need for the Government to invest in strategic sectors that will

facilitate Nigeria's ability to take advantage of the enhanced market opportunities. The negative consequences of the agreement can cancel out if the infrastructure is enhanced, thus, existing supply and capacity constraints such as electricity, transportation, security, access to credits must be addressed.

7.2   Recommendations

It is important to first note that Africa is still characterized by significant non-trade barriers such as transportation challenges, high transaction costs at the borders, etc. Several policy recommendations emanating from the key findings of this study are considered compelling. We strongly believe that the recommendations are feasible, and their implementation will help exploit the benefits accruable to the Nigerian economy regarding the AfCFTA agreement.

- In view of the finding that Nigeria's GDP will be negatively exposed to free trade if the country joins the AfCFTA, and considering the need to make the economy more competitive; we recognize that relying on the inflow of foreign saving to grow the economy may not readily pay-off. The study, therefore, recommends that the country should embark on massive infrastructure upgrade and institutional reforms to improve her business environment. The infrastructure upgrade could be realized through the concession of major infrastructural projects (electricity, roads, bridges, airports, seaports, etc.) to the private sector. The concessions must, however, be complemented by strong institutional reforms to effectively regulate the operations of the private sector.

- Producing highly competitive products in the foreign market also require strengthening government regulations and internal quality control of products produced in the country. The Standards Organization of Nigeria (SON) and the Nigerian Agency for Food and Drug Administration and Control (NAFDAC) have a crucial role to play in this respect. These regulatory institutions must be reoriented to effectively perform their constitutional regulatory functions.

- Nigeria needs to maximize the opportunities that are available to it in the AfCFTA agreement by enhancing the space for both domestic and foreign investment. Thus, there is the need to create a more business-friendly environment and reduce existing binding trade constraints in the country that has so far deterred the growth of foreign investment in different sectors of the economy. In addition to providing a reliable transportation system and power supply, the country can restore a business-friendly environment by substantially addressing all major security challenges that have in recent time inundated the country and discouraged foreign investors from doing business in Nigeria.

- There is a need for measures to counter the expected negative impact of AfCFTA on government revenue. The recommended policy measure here is to combine trade liberalization with increased drive for the inflow of foreign saving/investment into the Nigerian economy. The government can complement this with a programme of diversification of the Nigerian economy. If successfully pursued, diversification of the Nigerian economy will, in turn, boost the tax revenue base of the Nigerian Government.

- The government may begin to undertake deliberate measures that will strengthen various sectors including health, education, electricity, transportation, textile, apparel and footwear to maximize the benefits that are likely to accrue to them. This can be done by recognizing these sectors as AfCFTA priority sectors for immediate government support. The government support may include: tax breaks/rebate, government-backed preferential loan arrangements from commercial banks, etc. For sectors that are expected to suffer the greatest losses (including the chemical, chemical products and electrical; wood and wood products; cement and construction sectors) if the agreement comes into force, the government needs to create safeguards or incentives for such sectors. These incentives could come in the form of including the sectors in the sensitive list. This will help delay liberalization of these sectors to a later period and allow for the adjustment of the sectors to realities of the AfCFTA agreement.

- Implementation of the AfCFTA is also expected to trigger a surge in imports across sectors of

the Nigerian economy. The major concern here is the issue of dumping. Strict enforcement of the Rules of Origin (RoO) as enshrined in AfCFTA framework document. The relatively large market size of Nigeria makes the economy a target for dumping. To protect the economy from the dumping of inferior and substandard products, the RoO needs to be well strengthened and tightened. This may require the country using the five-year transitional period to negotiate and adjust within the economy. There is also a need to negotiate an effective dispute resolution mechanism that allows for sanctioning of erring parties within the AfCFTA. This mechanism may include a trade court solely for trade dispute resolution within the region.

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Annex 1

Column 1	Sectors	ABBRE
1	Crop Production	CPN
2	Livestock	LSK
3	Forestry	FTY
4	Fishery	FHY
5	Extractive Industry	EXTI
6	Oil Refining	OLR
7	Food, Beverage and Tobacco	FBT
8	Textile, Apparel and Footwear	TAF
9	Wood and Wood Products	WWP
10	Chemical,Chemical Products & electical	CCPE
11	Basic metal & Motor vehcicles	BMM
12	Other Ind	OTHI
13	Electricity	ELE
14	Other Utilities- water&waste management	WSW
15	Cement & Construction	CCON
16	Trade	TRD
17	Transport	TRAN
18	Telecommunications	TELC
19	Arts, Entertainment and Recreation	AER
20	Financial & Insurance	FIS
21	Real estate, Professional & Admin	REPA
22	Education	EDU
23	Health	HLT
24	Other Services	OSER
25	Public Admin	NTR

Annex 2

Table. 6.1. Macroeconomic Effects

Variable	SIM 1		SIM 2a		SIM 2b		SIM 3		SIM 4		SIM 5	
	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2
GDP	-0.019	-0.045	-0.011	-0.043	-0.028	-0.047	-0.021	-0.042	0.570	0.066	1.766	1.622
Govt. Revenue	-0.096	-0.206	-0.056	-0.204	-0.137	-0.207	-0.103	-0.192	0.423	-0.131	1.773	1.535
Total Investment	-0.073	-0.158	-0.043	-0.156	-0.105	-0.160	-0.078	-0.147	-5.273	-5.829	-1.225	-1.435
Aggregate Export	0.015	0.024	0.009	0.027	0.022	0.021	0.016	0.022	-0.895	-1.963	-0.048	-0.369
Aggregate Import	0.060	0.123	0.036	0.124	0.086	0.122	0.063	0.117	0.724	0.614	2.521	2.451

Source: Simulation Results based on the CGE model

Table. 6.2. Sectoral Output Effects

Variable	SIM 1		SIM 2a		SIM 2b		SIM 3		SIM 4		SIM 5	
	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2
cpn	-0.002	-0.011	-0.001	-0.009	-0.003	-0.014	-0.002	-0.011	-0.536	-1.804	-0.130	-0.535
lsk	-0.010	-0.038	-0.006	-0.032	-0.015	-0.045	-0.011	-0.038	-1.209	-3.267	-0.441	-1.185
fty	-0.002	-0.010	-0.001	-0.008	-0.003	-0.013	-0.002	-0.010	-0.577	-1.999	-0.185	-0.712
fhy	0.000	-0.006	0.000	-0.003	0.000	-0.009	0.000	-0.007	-0.220	-1.426	1.102	0.918
exti	0.002	0.002	0.001	0.003	0.002	0.002	0.002	0.002	-0.790	-1.413	1.991	1.789
olr	-0.008	-0.025	-0.005	-0.022	-0.011	-0.029	-0.008	-0.025	-0.626	-1.943	2.042	1.786
fbt	-0.007	-0.019	-0.004	-0.017	-0.010	-0.021	-0.008	-0.018	-0.276	-1.087	2.224	1.870
taf	0.048	0.103	0.029	0.101	0.069	0.104	0.052	0.096	-0.745	-0.823	2.287	2.081
wwp	-0.024	-0.062	-0.014	-0.058	-0.035	-0.067	-0.026	-0.058	-3.090	-4.861	0.900	0.157
ccpe	-0.019	-0.076	-0.011	-0.061	-0.027	-0.092	-0.020	-0.076	-1.049	-3.360	-0.479	-1.662
bmm	-0.019	-0.074	-0.011	-0.060	-0.027	-0.088	-0.019	-0.074	-0.676	-2.204	-0.101	-0.560
othi	0.001	-0.001	0.000	0.000	0.001	-0.002	0.001	-0.001	-0.893	-2.494	0.182	-0.587
ele	0.003	0.005	0.002	0.005	0.004	0.004	0.003	0.004	3.180	2.895	5.640	5.572
wsw	-0.001	-0.004	0.000	-0.003	-0.001	-0.006	-0.001	-0.005	0.092	-0.304	0.812	1.337
ccon	-0.006	-0.020	-0.003	-0.017	-0.009	-0.022	-0.007	-0.017	-3.469	-4.297	0.136	-0.208
trd	0.001	-0.003	0.001	-0.001	0.002	-0.006	0.001	-0.003	-0.290	-1.136	1.885	1.582
tran	0.001	0.001	0.001	0.001	0.002	0.000	0.001	0.000	-0.420	-1.246	1.476	1.397
telc	0.005	0.007	0.003	0.008	0.007	0.006	0.005	0.006	-0.272	-0.851	0.935	0.732
aer	0.000	-0.003	0.000	-0.002	0.000	-0.005	0.000	-0.003	-0.424	-1.333	0.385	0.372
fis	-0.001	-0.005	0.000	-0.003	-0.001	-0.006	-0.001	-0.005	-0.221	-0.782	1.649	1.328
repa	-0.006	-0.018	-0.003	-0.016	-0.008	-0.021	-0.006	-0.018	-0.229	-1.002	1.411	1.223
edu	0.006	0.010	0.003	0.010	0.008	0.009	0.006	0.009	3.836	3.926	5.575	5.807
hlt	0.014	0.028	0.008	0.028	0.020	0.027	0.015	0.025	4.145	3.892	6.575	6.509
oser	-0.001	-0.006	0.000	-0.004	-0.001	-0.007	-0.001	-0.006	0.175	-0.467	1.758	1.828
ntr	-0.004	-0.008	-0.002	-0.008	-0.006	-0.007	-0.004	-0.007	1.083	1.176	2.252	2.249

Source: Simulation Results based on the CGE model

Table. 6.3. Imports Effects by Sectors

Variable	SIM 1		SIM 2a		SIM 2b		SIM 3		SIM 4		SIM 5	
	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2
cpn	0.229	0.473	0.135	0.474	0.325	0.472	0.253	0.422	1.826	2.315	4.225	4.700
lsk	0.182	0.391	0.108	0.386	0.259	0.398	0.203	0.348	-2.174	-0.309	2.243	3.168
fty	-0.011	-0.030	-0.006	-0.027	-0.016	-0.032	-0.012	-0.028	1.223	0.870	3.936	3.930
fhy	0.224	0.456	0.133	0.460	0.319	0.452	0.223	0.459	1.110	0.498	3.109	2.839
exti	0.233	0.472	0.138	0.476	0.330	0.467	0.231	0.473	0.635	0.407	-1.116	-0.979
olr	0.201	0.411	0.119	0.414	0.286	0.409	0.199	0.414	0.571	-0.180	3.174	2.837
fbt	0.213	0.438	0.126	0.440	0.303	0.436	0.236	0.389	1.373	1.080	1.191	1.479
taf	0.081	0.169	0.047	0.170	0.116	0.167	0.090	0.150	0.204	-0.298	1.907	1.796
wwp	-0.075	-0.161	-0.044	-0.160	-0.107	-0.162	-0.080	-0.148	-5.131	-5.481	-0.975	-0.894
ccpe	0.068	0.145	0.040	0.144	0.097	0.146	0.077	0.126	-3.479	-3.620	0.344	0.453
bmm	0.083	0.201	0.049	0.190	0.119	0.212	0.082	0.204	0.445	0.814	3.904	4.020
othi	-0.008	-0.024	-0.004	-0.021	-0.011	-0.026	-0.009	-0.021	-1.394	-1.393	1.820	2.001
ele	-0.015	-0.040	-0.009	-0.037	-0.022	-0.044	-0.017	-0.037	4.787	3.844	0.974	1.033
wsw	0.002	0.000	0.001	0.001	0.002	-0.001	0.001	0.000	5.912	5.034	8.586	7.166
ccon	-0.067	-0.143	-0.040	-0.142	-0.096	-0.144	-0.072	-0.133	-3.273	-3.574	-0.636	-0.735
tran	-0.003	-0.009	-0.002	-0.008	-0.004	-0.011	-0.003	-0.009	1.698	2.056	4.358	3.846
telc	-0.027	-0.058	-0.016	-0.057	-0.038	-0.060	-0.029	-0.054	1.302	1.381	1.557	1.663
aer	0.004	0.002	0.002	0.004	0.005	0.000	0.004	0.002	2.291	3.013	5.269	4.922
fis	-0.014	-0.035	-0.008	-0.032	-0.020	-0.037	-0.015	-0.032	1.431	1.120	-0.375	0.194
repa	-0.025	-0.051	-0.015	-0.052	-0.036	-0.050	-0.027	-0.046	2.195	2.319	3.762	3.635
oser	-0.010	-0.027	-0.006	-0.025	-0.014	-0.029	-0.011	-0.025	3.648	2.998	5.685	4.389

Source: Simulation Results based on the CGE model

Table. 6.4. Exports Effects by Sectors

Variable	SIM 1		SIM 2a		SIM 2b		SIM 3		SIM 4		SIM 5	
	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2
cpn	0.005	0.005	0.003	0.007	0.007	0.003	0.005	0.003	-1.233	-2.587	-1.864	-2.346
lsk	0.019	0.016	0.011	0.025	0.026	0.006	0.020	0.011	-0.082	-2.899	-1.346	-2.373
fty	0.003	0.002	0.002	0.003	0.004	0.000	0.003	0.001	-1.064	-2.341	-1.733	-2.250
fhy	0.011	0.020	0.006	0.021	0.015	0.020	0.011	0.019	-0.647	-1.421	-0.310	-0.230
exti	0.005	0.011	0.003	0.011	0.007	0.012	0.005	0.011	-0.883	-1.389	2.328	2.155
olr	0.012	0.019	0.007	0.021	0.017	0.017	0.012	0.018	-0.771	-1.639	0.725	0.741
fbt	0.009	0.016	0.005	0.017	0.012	0.015	0.009	0.014	-0.821	-1.361	1.755	1.393
taf	0.049	0.105	0.029	0.103	0.070	0.106	0.053	0.097	-0.744	-0.818	2.277	2.073
wwp	0.009	0.009	0.005	0.013	0.013	0.004	0.009	0.007	-0.817	-2.471	1.337	0.555
ccpe	0.056	0.077	0.033	0.093	0.079	0.061	0.061	0.062	0.538	-1.641	-0.520	-1.638
bmm	0.055	0.067	0.032	0.085	0.077	0.047	0.055	0.065	-0.766	-2.338	-1.721	-2.105
othi	0.003	0.007	0.002	0.007	0.005	0.007	0.004	0.006	-0.421	-2.030	-0.430	-1.254
ccon	0.026	0.047	0.015	0.049	0.036	0.045	0.026	0.045	-1.958	-2.657	0.435	0.136
tran	0.002	0.005	0.001	0.005	0.003	0.005	0.002	0.004	-1.135	-2.103	-0.363	-0.230
telc	0.017	0.034	0.010	0.034	0.024	0.033	0.018	0.031	-0.856	-1.467	0.229	-0.020
aer	-0.002	-0.004	-0.001	-0.004	-0.003	-0.005	-0.002	-0.004	-1.544	-2.786	-2.158	-2.010
fis	0.006	0.013	0.004	0.013	0.009	0.013	0.007	0.011	-0.927	-1.333	1.840	1.230
repa	0.006	0.006	0.004	0.009	0.009	0.003	0.007	0.005	-1.269	-2.092	-0.381	-0.508
oser	0.004	0.008	0.003	0.008	0.006	0.007	0.005	0.007	-1.604	-1.926	-1.014	-0.335

Source: Simulation Results based on the CGE model

Table. 6.5. Sectoral Demand for Labour

Variable	SIM 1		SIM 2a		SIM 2b		SIM 3		SIM 4		SIM 5	
	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2
cpn	-0.003	-0.013	-0.002	-0.010	-0.004	-0.016	-0.003	-0.013	-0.677	-1.946	-0.236	-0.597
lsk	-0.013	-0.042	-0.008	-0.036	-0.018	-0.049	-0.014	-0.041	-1.499	-3.435	-0.580	-1.213
fty	-0.002	-0.012	-0.001	-0.009	-0.003	-0.014	-0.003	-0.012	-0.724	-2.152	-0.288	-0.761
fhy	0.000	-0.008	0.000	-0.005	0.000	-0.011	0.000	-0.008	-0.451	-1.773	0.170	0.045
exti	-0.001	-0.005	0.000	-0.003	-0.001	-0.006	-0.001	-0.005	-0.921	-2.278	-0.244	-0.563
olr	-0.006	-0.023	-0.003	-0.019	-0.008	-0.028	-0.006	-0.023	-0.785	-2.423	0.031	-0.132
fbt	-0.003	-0.015	-0.002	-0.012	-0.005	-0.019	-0.003	-0.015	-0.706	-2.317	-1.121	-2.728
taf	0.010	0.032	0.006	0.027	0.014	0.037	0.011	0.031	-0.841	-2.379	-1.017	-2.400
wwp	-0.012	-0.045	-0.007	-0.037	-0.018	-0.054	-0.013	-0.044	-1.841	-4.768	-0.896	-2.044
ccpe	-0.022	-0.082	-0.013	-0.067	-0.031	-0.098	-0.024	-0.081	-1.278	-3.581	-0.682	-1.737
bmm	-0.023	-0.080	-0.013	-0.066	-0.032	-0.093	-0.023	-0.080	-0.844	-2.374	-0.239	-0.654
othi	0.000	-0.004	0.000	-0.002	0.000	-0.005	0.000	-0.004	-1.014	-2.787	-0.516	-1.261
ele	-0.001	-0.008	-0.001	-0.005	-0.002	-0.010	-0.001	-0.008	-0.012	-0.492	-0.459	-1.118
wsw	-0.001	-0.006	-0.001	-0.004	-0.001	-0.007	-0.001	-0.006	-0.034	-0.498	0.544	1.006
ccon	-0.003	-0.016	-0.002	-0.012	-0.005	-0.020	-0.004	-0.016	-1.529	-4.153	-1.465	-3.364
trd	-0.001	-0.008	0.000	-0.006	-0.001	-0.011	-0.001	-0.008	-0.673	-2.092	-0.706	-1.542
tran	0.000	-0.003	0.000	-0.002	-0.001	-0.005	0.000	-0.004	-0.680	-1.803	0.104	0.063
telc	0.002	0.001	0.001	0.003	0.003	0.000	0.002	0.001	-0.625	-1.608	-0.533	-0.954
aer	0.000	-0.005	0.000	-0.003	-0.001	-0.006	-0.001	-0.005	-0.589	-1.545	0.063	0.044
fis	-0.002	-0.010	-0.001	-0.007	-0.003	-0.012	-0.002	-0.010	-0.672	-1.975	-0.846	-1.859
repa	-0.005	-0.019	-0.003	-0.016	-0.007	-0.023	-0.005	-0.019	-0.562	-1.623	-0.080	-0.270
edu	0.001	-0.001	0.000	0.000	0.001	-0.002	0.001	-0.001	0.974	1.634	0.808	1.604
hlt	0.001	0.000	0.001	0.001	0.001	-0.001	0.001	0.000	0.120	-0.172	-0.386	-0.964
oser	-0.001	-0.008	-0.001	-0.006	-0.002	-0.010	-0.002	-0.008	-0.217	-0.998	0.452	0.625

Source: Simulation Results based on the CGE model

Table. 6.6. Sectoral Demand for Capital

Variable	SIM 1		SIM 2a		SIM 2b		SIM 3		SIM 4		SIM 5	
	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2
cpn	-0.005	-0.007	-0.003	-0.008	-0.006	-0.006	-0.005	-0.006	0.218	0.858	8.386	8.476
lsk	-0.054	-0.089	-0.032	-0.099	-0.077	-0.078	-0.057	-0.079	-4.009	-1.478	6.541	7.395
fty	-0.003	-0.004	-0.002	-0.005	-0.004	-0.004	-0.003	-0.005	-0.133	0.116	8.020	7.933
fhy	0.005	0.001	0.003	0.005	0.007	-0.003	0.005	-0.001	1.101	0.522	10.447	9.338
exti	0.003	0.006	0.002	0.006	0.004	0.005	0.003	0.005	-0.817	-1.022	3.158	3.046
olr	-0.021	-0.041	-0.012	-0.042	-0.030	-0.040	-0.021	-0.042	-0.616	-0.756	9.822	9.171
fbt	-0.008	-0.020	-0.005	-0.018	-0.011	-0.022	-0.009	-0.019	-0.214	-0.858	2.904	2.877
taf	0.065	0.134	0.039	0.134	0.093	0.134	0.070	0.124	-0.775	-0.219	3.624	4.026
wwp	-0.055	-0.109	-0.032	-0.112	-0.079	-0.105	-0.060	-0.098	-6.544	-5.638	4.484	5.066
ccpe	-0.112	-0.232	-0.067	-0.232	-0.159	-0.232	-0.123	-0.211	-3.413	-3.388	5.573	5.252
bmm	-0.112	-0.213	-0.066	-0.219	-0.158	-0.206	-0.112	-0.212	-0.745	-0.218	8.326	8.156
othi	0.010	0.020	0.006	0.020	0.014	0.021	0.010	0.020	-1.754	-1.144	6.666	6.781
ele	0.004	0.007	0.002	0.008	0.006	0.007	0.004	0.006	3.911	3.658	7.034	7.129
wsw	0.006	0.016	0.003	0.014	0.008	0.017	0.006	0.014	3.803	3.883	12.836	11.881
ccon	-0.008	-0.023	-0.005	-0.022	-0.012	-0.025	-0.010	-0.019	-4.869	-4.541	0.971	1.821
trd	0.004	0.003	0.002	0.005	0.006	0.000	0.004	0.003	0.092	0.120	5.712	6.492
tran	0.009	0.024	0.005	0.022	0.014	0.025	0.010	0.022	0.343	1.556	10.271	9.812
telc	0.019	0.032	0.011	0.035	0.027	0.029	0.020	0.029	0.733	2.098	7.032	8.321
aer	0.008	0.018	0.005	0.018	0.011	0.019	0.009	0.017	0.928	2.148	10.134	9.912
fis	0.000	0.001	0.000	0.001	0.001	0.001	0.000	0.001	0.209	0.676	4.861	5.760
repa	-0.015	-0.024	-0.009	-0.027	-0.022	-0.021	-0.016	-0.022	0.924	1.705	9.287	9.197
edu	0.014	0.028	0.008	0.028	0.020	0.028	0.015	0.026	9.226	7.982	14.407	13.290
hlt	0.016	0.031	0.009	0.031	0.022	0.031	0.017	0.028	4.659	4.401	7.457	7.469
oser	0.003	0.006	0.002	0.006	0.004	0.007	0.003	0.006	2.669	2.727	12.044	10.635
ntr	-0.025	-0.048	-0.015	-0.050	-0.036	-0.046	-0.027	-0.045	7.065	7.681	14.993	14.970

Source: Simulation Results based on the CGE model

Table. 6.7. Effects of Tariff Cuts on Households Income

Variable	SIM 1		SIM 2a		SIM 2b		SIM 3		SIM 4		SIM 5	
	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2
	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)
HRR	-0.012	-0.030	-0.007	-0.028	-0.017	-0.031	-0.013	-0.028	0.622	0.138	1.932	1.768
HRP	-0.004	-0.013	-0.002	-0.011	-0.006	-0.014	-0.004	-0.012	0.499	-0.035	1.327	1.276
HUR	-0.012	-0.029	-0.007	-0.028	-0.017	-0.031	-0.013	-0.028	0.621	0.137	1.928	1.765
HUP	-0.003	-0.012	-0.002	-0.010	-0.005	-0.013	-0.004	-0.011	0.492	-0.046	1.291	1.247

Source: Simulation Results based on the CGE model

Table. 6.8. Effects of Tariff Cuts on Urban Poor Household Consumption

Variable	SIM 1		SIM 2a		SIM 2b		SIM 3		SIM 4		SIM 5	
	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2
	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)
cpn	0.007	0.007	0.004	0.010	0.009	0.004	0.007	0.006	-0.516	-1.778	-0.233	-0.548
lsk	0.019	0.024	0.011	0.030	0.027	0.017	0.020	0.020	0.635	-1.448	0.290	-0.316
fty	0.004	0.002	0.003	0.005	0.006	-0.001	0.005	0.002	-0.491	-1.942	-0.199	-0.572
fhy	0.011	0.017	0.006	0.019	0.015	0.015	0.011	0.016	-0.237	-1.349	0.668	0.694
exti	0.008	0.013	0.005	0.014	0.011	0.011	0.008	0.012	-0.286	-1.599	3.574	3.341
olr	0.056	0.099	0.034	0.106	0.080	0.092	0.057	0.097	-0.269	-2.714	2.634	2.653
fbt	0.012	0.020	0.007	0.022	0.017	0.017	0.013	0.018	-0.278	-1.110	1.623	1.384
taf	0.089	0.177	0.053	0.179	0.126	0.175	0.098	0.158	0.296	-0.356	1.256	1.241
wwp	0.015	0.023	0.009	0.026	0.021	0.020	0.016	0.021	0.776	-0.435	1.731	1.365
ccpe	0.079	0.153	0.047	0.157	0.112	0.149	0.087	0.136	0.538	-0.356	1.160	1.006
bmm	0.066	0.118	0.039	0.125	0.094	0.110	0.066	0.117	0.058	-1.003	0.416	0.279
othi	0.002	0.000	0.001	0.002	0.003	-0.002	0.002	0.000	0.274	-0.821	0.865	0.558
ele	0.007	0.012	0.004	0.013	0.010	0.011	0.008	0.011	-0.356	-0.866	2.865	2.708
wsw	0.000	-0.005	0.000	-0.003	0.000	-0.008	0.000	-0.005	-1.315	-1.929	-0.866	-0.478
ccon	0.012	0.019	0.007	0.021	0.017	0.016	0.012	0.018	0.152	-0.698	1.306	1.150
trd	0.009	0.013	0.005	0.015	0.013	0.011	0.009	0.012	-0.424	-1.308	1.147	0.954
tran	0.001	-0.001	0.001	0.000	0.001	-0.002	0.001	-0.001	-0.240	-0.869	0.202	0.211
telc	0.006	0.010	0.004	0.011	0.009	0.009	0.007	0.009	-0.181	-0.733	0.551	0.428
aer	0.000	-0.003	0.000	-0.002	0.000	-0.004	0.000	-0.003	-0.335	-1.026	-0.152	-0.159
fis	0.003	0.004	0.002	0.005	0.004	0.003	0.003	0.003	-0.215	-0.689	1.083	0.835
repa	0.004	0.004	0.002	0.006	0.006	0.002	0.004	0.003	-0.345	-0.940	0.216	0.142
edu	0.008	0.011	0.005	0.013	0.011	0.009	0.008	0.010	-1.273	-1.680	0.513	0.667
hlt	0.020	0.036	0.012	0.037	0.028	0.034	0.021	0.032	-0.207	-0.800	2.383	2.276
oser	0.004	0.003	0.002	0.005	0.006	0.001	0.004	0.003	-1.021	-1.758	-0.227	0.140

Source: Simulation Results based on the CGE model

Table. 6.9. Effects of Tariff Cuts on Urban Rich Household Consumption

Variable	SIM 1		SIM 2a		SIM 2b		SIM 3		SIM 4		SIM 5	
	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2
	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)
cpn	-0.003	-0.014	-0.002	-0.011	-0.005	-0.017	-0.003	-0.014	-0.405	-1.656	0.612	0.152
lsk	0.010	0.004	0.006	0.011	0.014	-0.003	0.011	0.001	0.829	-1.302	1.179	0.403
fty	-0.009	-0.025	-0.005	-0.022	-0.012	-0.028	-0.009	-0.024	-0.336	-1.760	0.896	0.339
fhy	-0.002	-0.009	-0.001	-0.007	-0.003	-0.012	-0.002	-0.009	-0.063	-1.123	1.834	1.707
exti	-0.008	-0.020	-0.004	-0.018	-0.011	-0.022	-0.008	-0.019	-0.074	-1.319	5.227	4.780
olr	0.031	0.045	0.018	0.052	0.043	0.037	0.030	0.045	0.135	-2.190	5.320	4.994
fbt	0.002	0.000	0.002	0.002	0.003	-0.003	0.003	-0.002	-0.150	-0.938	2.620	2.240
taf	0.085	0.168	0.050	0.170	0.120	0.166	0.094	0.149	0.466	-0.129	2.223	2.086
wwp	0.006	0.004	0.003	0.007	0.008	0.000	0.006	0.002	0.981	-0.213	2.737	2.220
ccpe	0.074	0.142	0.044	0.146	0.105	0.138	0.082	0.125	0.726	-0.129	2.120	1.832
bmm	0.061	0.105	0.036	0.113	0.085	0.097	0.060	0.105	0.211	-0.824	1.314	1.046
othi	-0.008	-0.021	-0.005	-0.020	-0.011	-0.024	-0.008	-0.021	0.442	-0.629	1.801	1.347
ele	-0.002	-0.008	-0.001	-0.007	-0.004	-0.009	-0.002	-0.009	-0.233	-0.676	3.964	3.671
wsw	-0.010	-0.027	-0.006	-0.025	-0.015	-0.029	-0.011	-0.026	-1.262	-1.818	-0.073	0.228
ccon	0.003	-0.001	0.002	0.001	0.003	-0.004	0.002	-0.002	0.311	-0.497	2.278	1.987
trd	-0.001	-0.008	0.000	-0.005	-0.001	-0.010	-0.001	-0.007	-0.307	-1.152	2.106	1.775
tran	-0.005	-0.013	-0.003	-0.012	-0.007	-0.014	-0.005	-0.012	-0.172	-0.788	0.712	0.653
telc	0.001	-0.001	0.001	0.000	0.001	-0.003	0.001	-0.002	-0.110	-0.643	1.090	0.888
aer	-0.006	-0.016	-0.004	-0.015	-0.009	-0.017	-0.007	-0.015	-0.275	-0.957	0.329	0.254
fis	-0.003	-0.008	-0.002	-0.007	-0.004	-0.009	-0.003	-0.008	-0.146	-0.595	1.666	1.328
repa	-0.001	-0.008	-0.001	-0.006	-0.002	-0.010	-0.002	-0.008	-0.286	-0.865	0.727	0.579
edu	-0.002	-0.009	-0.001	-0.007	-0.003	-0.011	-0.002	-0.009	-1.217	-1.551	1.419	1.465
hlt	0.011	0.017	0.006	0.019	0.015	0.015	0.012	0.014	-0.074	-0.605	3.444	3.204
oser	-0.006	-0.018	-0.004	-0.016	-0.009	-0.020	-0.006	-0.017	-0.947	-1.634	0.618	0.895

Source: Simulation Results based on the CGE model

Table. 6.10. Effects of Tariff Cuts on Rural Poor Household Consumption

Variable	SIM 1		SIM 2a		SIM 2b		SIM 3		SIM 4		SIM 5	
	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2
	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)
cpn	0.005	0.005	0.003	0.007	0.007	0.002	0.006	0.003	-0.486	-1.725	-0.393	-0.719
lsk	0.017	0.020	0.010	0.026	0.024	0.013	0.018	0.017	0.591	-1.417	0.095	-0.503
fty	0.003	-0.001	0.002	0.002	0.004	-0.004	0.003	-0.001	-0.463	-1.897	-0.411	-0.801
fhy	0.009	0.013	0.005	0.015	0.012	0.011	0.009	0.012	-0.226	-1.343	0.397	0.379
exti	0.006	0.008	0.004	0.010	0.009	0.007	0.006	0.008	-0.273	-1.594	3.057	2.786
olr	0.050	0.086	0.030	0.093	0.071	0.080	0.051	0.084	-0.261	-2.718	1.955	1.878
fbt	0.010	0.016	0.006	0.018	0.014	0.014	0.011	0.014	-0.264	-1.101	1.338	1.081
taf	0.082	0.163	0.049	0.165	0.116	0.161	0.090	0.146	0.273	-0.397	0.995	0.949
wwp	0.013	0.020	0.008	0.023	0.018	0.016	0.014	0.018	0.722	-0.470	1.438	1.064
ccpe	0.073	0.141	0.043	0.144	0.103	0.137	0.080	0.125	0.500	-0.397	0.906	0.729
bmm	0.061	0.108	0.036	0.115	0.086	0.101	0.061	0.108	0.051	-1.001	0.212	0.052
othi	0.001	-0.002	0.001	-0.001	0.001	-0.004	0.001	-0.003	0.252	-0.831	0.631	0.311
ele	0.006	0.009	0.004	0.010	0.008	0.008	0.006	0.008	-0.336	-0.873	2.496	2.315
wsw	-0.001	-0.007	-0.001	-0.005	-0.001	-0.009	-0.001	-0.007	-1.233	-1.866	-0.983	-0.654
ccon	0.010	0.015	0.006	0.018	0.014	0.013	0.011	0.014	0.139	-0.717	1.042	0.863
trd	0.007	0.010	0.004	0.012	0.010	0.008	0.008	0.009	-0.400	-1.286	0.894	0.680
tran	0.000	-0.002	0.000	-0.001	0.000	-0.003	0.000	-0.002	-0.226	-0.848	0.088	0.077
telc	0.005	0.008	0.003	0.010	0.008	0.007	0.006	0.008	-0.171	-0.722	0.413	0.280
aer	-0.001	-0.004	0.000	-0.003	-0.001	-0.005	-0.001	-0.004	-0.316	-0.995	-0.242	-0.267
fis	0.002	0.002	0.001	0.003	0.003	0.001	0.002	0.002	-0.203	-0.680	0.910	0.660
repa	0.003	0.002	0.002	0.004	0.005	0.001	0.004	0.002	-0.325	-0.915	0.101	0.013
edu	0.006	0.008	0.004	0.010	0.009	0.006	0.007	0.008	-1.193	-1.634	0.303	0.413
hlt	0.017	0.031	0.010	0.033	0.024	0.029	0.019	0.028	-0.197	-0.811	2.047	1.913
oser	0.003	0.001	0.002	0.003	0.004	-0.001	0.003	0.000	-0.958	-1.706	-0.387	-0.078

Source: Simulation Results based on the CGE model

Table. 6.11. Effects of Tariff Cuts on Urban Rich Household Consumption

Variable	SIM 1		SIM 2a		SIM 2b		SIM 3		SIM 4		SIM 5	
	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2
	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)
cpn	-0.002	-0.012	-0.001	-0.009	-0.004	-0.015	-0.002	-0.013	-0.365	-1.566	0.495	0.051
lsk	0.010	0.005	0.006	0.011	0.014	-0.002	0.011	0.002	0.793	-1.234	1.026	0.286
fty	-0.007	-0.022	-0.004	-0.020	-0.011	-0.025	-0.008	-0.022	-0.295	-1.668	0.739	0.199
fhy	-0.001	-0.007	-0.001	-0.005	-0.002	-0.010	-0.001	-0.008	-0.040	-1.070	1.617	1.481
exti	-0.006	-0.017	-0.004	-0.016	-0.009	-0.019	-0.007	-0.017	-0.046	-1.258	4.772	4.332
olr	0.030	0.045	0.018	0.052	0.043	0.038	0.030	0.045	0.170	-2.092	4.759	4.414
fbt	0.003	0.001	0.002	0.003	0.004	-0.002	0.003	-0.001	-0.126	-0.893	2.376	2.006
taf	0.080	0.159	0.048	0.161	0.113	0.156	0.089	0.140	0.452	-0.134	2.004	1.861
wwp	0.006	0.004	0.003	0.008	0.008	0.001	0.006	0.003	0.935	-0.214	2.485	1.986
ccpe	0.070	0.134	0.042	0.138	0.099	0.130	0.078	0.118	0.696	-0.135	1.907	1.623
bmm	0.057	0.099	0.034	0.106	0.081	0.092	0.057	0.099	0.213	-0.786	1.153	0.888
othi	-0.007	-0.019	-0.004	-0.017	-0.010	-0.021	-0.007	-0.019	0.429	-0.603	1.608	1.169
ele	-0.002	-0.007	-0.001	-0.006	-0.003	-0.008	-0.002	-0.007	-0.203	-0.648	3.634	3.345
wsw	-0.009	-0.024	-0.005	-0.022	-0.013	-0.027	-0.010	-0.024	-1.168	-1.718	-0.146	0.122
ccon	0.003	0.000	0.002	0.002	0.004	-0.003	0.003	-0.001	0.307	-0.479	2.055	1.769
trd	0.000	-0.006	0.000	-0.004	0.000	-0.009	0.000	-0.006	-0.272	-1.093	1.894	1.570
tran	-0.004	-0.012	-0.002	-0.011	-0.006	-0.013	-0.004	-0.011	-0.153	-0.746	0.623	0.559
telc	0.001	-0.001	0.001	0.001	0.002	-0.002	0.001	-0.001	-0.094	-0.610	0.976	0.779
aer	-0.006	-0.014	-0.003	-0.013	-0.008	-0.015	-0.006	-0.014	-0.249	-0.905	0.264	0.185
fis	-0.002	-0.007	-0.001	-0.006	-0.003	-0.008	-0.002	-0.007	-0.128	-0.566	1.516	1.191
repa	-0.001	-0.007	-0.001	-0.005	-0.002	-0.009	-0.001	-0.007	-0.259	-0.818	0.637	0.490
edu	-0.001	-0.008	-0.001	-0.006	-0.002	-0.010	-0.002	-0.008	-1.126	-1.468	1.251	1.280
hlt	0.010	0.017	0.006	0.018	0.015	0.015	0.012	0.014	-0.054	-0.581	3.147	2.908
oser	-0.005	-0.016	-0.003	-0.014	-0.007	-0.018	-0.005	-0.015	-0.873	-1.545	0.501	0.747

Source: Simulation Results based on the CGE model

Table. 6.12. AFCFTA Impact on Nigeria's Import by ROW

Trade Partner	SIM 1	SIM 2a	SIM 2b	SIM 3	SIM 4	SIM 5
	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)
CAFR	3.3536	2.9083	3.8124	3.2825	3.9238	5.81
CHA	-0.0699	-0.0603	-0.0798	-0.0681	0.5078	2.32
CIV	3.689	3.1992	4.1937	3.6187	4.4571	6.46
EAFR	3.0311	2.6285	3.446	2.9481	3.4526	5.76
EU	-0.0699	-0.0603	-0.0798	-0.0681	0.5078	2.32
GHN	3.5226	3.0549	4.0047	3.4479	3.9042	6.05
NAFR	3.2892	2.8524	3.7393	3.2105	3.6652	5.80
OSA	2.7855	2.4158	3.1665	2.7652	3.3515	5.39
OTA	-0.0699	-0.0603	-0.0798	-0.0681	0.5078	2.32
OWAFR	3.3536	2.9083	3.8124	3.2825	3.9238	5.81
ROW	-0.0699	-0.0603	-0.0798	-0.0681	0.5078	2.32
SA	3.5226	3.0549	4.0047	3.4479	3.9042	6.05
SEN	3.682	3.193	4.186	3.594	3.9945	6.16
TG	3.3554	2.91	3.8145	3.2701	3.977	6.36
US	-0.0699	-0.0603	-0.0798	-0.0681	0.5078	2.32

Source: Simulation Results based on the CGE model

Table. 6.13. AFCFTA Impact on Nigeria's Export by ROW

Trade Partner	SIM 1	SIM 2a	SIM 2b	SIM 3	SIM 4	SIM 5
	(% change)	(% change)	(% change)	(% change)	(% change)	(% change)
CAFR	0.0216	0.0199	0.0233	0.0208	-1.4302	-0.24795
CHA	0.0199	0.0183	0.0214	0.0191	-1.429	-0.20868
CIV	0.021	0.0192	0.0228	0.0202	-1.4142	-0.10641
EAFR	0.0203	0.0186	0.022	0.0195	-1.4386	-0.16698
EU	0.0199	0.0183	0.0214	0.0191	-1.429	-0.20868
GHN	0.0199	0.0183	0.0214	0.0191	-1.429	-0.20868
NAFR	0.0218	0.02	0.0236	0.021	-1.4316	-0.25316
OSA	0.0126	0.0113	0.014	0.0122	-1.5585	-0.29878
OTA	0.0199	0.0183	0.0214	0.0191	-1.429	-0.20868
OWAFR	0.0215	0.0197	0.0232	0.0206	-1.4052	-0.27143
ROW	0.0199	0.0183	0.0214	0.0191	-1.429	-0.20868
SA	0.0181	0.0165	0.0198	0.0176	-1.4681	-0.0456
SEN	0.0183	0.0171	0.0195	0.0175	-1.4942	-0.49705
TG	0.0171	0.0159	0.0183	0.0162	-1.4688	-0.55841
US	0.0208	0.0191	0.0225	0.02	-1.4296	-0.33199

Source: Simulation Results based on the CGE model