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The impacts of the African Continental Free Trade Area on the Nigerian economy

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Contents

Abstract

The African Continental Free Trade Area (AfCFTA) is aimed at boosting intra-African trade and promoting regional development. However, the distribution of its benefits and costs across member states and household groups is uneven, and it presents opportunities and threats to different sectors of the economy. This report assesses the impact of the AfCFTA on the Nigerian economy, with particular reference to the agri-food sectors.

Analysis performed using the MAGNET and DEMETRA economy-wide models calibrated on the GTAP 10 database and Nigeria's 2019 Social Accounting Matrix, respectively, shows that the AfCFTA has a negligible impact on Nigerian gross domestic product, notably in the case of a liberalisation scenario that eliminates tariffs but does not include non-tariff measures (NTMs) cost reduction. Contrary to expectations, government revenue increases, as revenue from other sources offsets the fall in customs revenue, and this effect is larger under the intermediate input liberalisation schedule. The outputs of the industry, utilities, construction, services and agriculture sectors increase, while the outputs of the public services, extractive industry and processed food sectors decrease. The reduction in the output of the processed food sector leads to an increase in imports of processed food commodities. The increase in output is larger under the agricultural trade liberalisation schedule. The employment effects also mirror the output effects, with the sectors experiencing output contraction also experiencing a fall in employment, and vice versa. Low-skilled labour will be affected due to adverse effects on output of sectors where they are employed. The welfare impact is larger for rural households than for urban households. For urban households, some outlier households face welfare losses in 2025 and 2030. But these negative welfare effects turn positive in the transition to 2035 as the AfCFTA benefits expand.

In terms of bilateral trade flows, the results show that trade between Nigeria and other AfCFTA member states will increase significantly by 2035. On the one hand, the regions and countries that will experience the largest increase in exports from Nigeria include Cameroon, Côte d'Ivoire, Ghana, the rest of Central Africa and the rest of West Africa under both the *tariff-only* and *tariffs & NTMs* scenarios and across the four liberalisation schedules. However, the increases in exports under the tariffs & NTMs scenario are greater than under the tariff-only scenario. Oil and manufacturing products are the commodities that will experience the largest increases in exports. In most cases, the tariff revenue maximisation strategy will deliver the largest increase in exports compared with the other strategies. On the other hand, the largest increase in imports will come from Côte d'Ivoire, South Africa and the rest of West Africa. Unlike exports, the tariffs & NTMs scenario does not yield a larger increase in imports than the tariff-only scenario. The commodities with the largest increase in imports are manufacturing commodities, vegetable oils and fats, and chemical products. Based on the findings of the study, it is recommended that complementary policies be implemented to stimulate growth. Policies to boost key sectors that are negatively affected, including the processed food sector, may be adopted.

Executive summary

The African Continental Free Trade Area (AfCFTA) was established in May 2019 to enable the economic integration of Africa. It is a flagship project of Agenda 2063, the African Union's development framework. The AfCFTA, with 54 signatories, is the world's largest free trade area in terms of the number of participating countries, and those countries are home to a total of 1.3 billion people. It has the potential to increase household incomes and bring millions of people out of extreme poverty. However, realising these positive outcomes will require effective policy reforms and trade facilitation measures in all AfCFTA member states, and the benefits will not be shared equally across member states.

Although Nigeria was the largest economy in Africa at the time of the launch of the AfCFTA, it was reluctant to sign the agreement largely due to pressure from powerful stakeholders and pressure groups, which had concerns that the AfCFTA would encourage dumping and adversely affect local industries. There is limited empirical evidence on the potential effects of the AfCFTA on the Nigerian economy, and this delayed Nigeria's decision to sign the agreement and join the free trade area. This report builds on existing work on the effects of the AfCFTA on member states by examining its potential effects on the Nigerian economy. Specifically, the report investigates the potential effects of the AfCFTA on the Nigerian economy as a whole, analysing its impacts on core macroeconomic indicators, sectoral outputs, household welfare, labour markets and trade flows.

This study uses the Modular Applied General Equilibrium Tool (MAGNET) and the Dynamic Equilibrium Model for Economic Development Resources and Agriculture (DEMETRA), which are computable general equilibrium models, to conduct an economy-wide assessment of the potential impacts of the AfCFTA on the Nigerian economy from 2025 to 2035. While MAGNET determines the trade creation and diversion effects across the African continent, DEMETRA analyses the in-country economy-wide impacts of the AfCFTA. The study simulates the impact of two scenarios – tariff-only liberalisation (tariff-only) and a combination of tariff and non-tariff measures (tariffs & NTMs) – under four policy objective schedules: liberalisation based on revenue maximisation from tariffs (REV), liberalisation based on agricultural trade (AGR), liberalisation based on intermediate inputs trade (INT) and revealed comparative advantage commodity trade (RCA).

The results from DEMETRA show that the AfCFTA will have a small impact on gross domestic product, notably in the tariff-only scenario. Contrary to expectations, government revenue will increase, as revenue from other sources will offset the fall in tariff revenue. Among the liberalisation strategies considered, revenue loss mitigation will be largest under the strategy that liberalises intermediate input with a view to promoting industrialisation. Generally, the outputs of the industry, utilities, construction, services and agriculture sectors will increase, while the outputs of the public services, extractive industry and processed food sectors will decrease. The reduction in the output of the processed food sector will lead to an increase in imports of processed food commodities. The increase in the output of the industrial sector will be larger under the AGR and REV liberalisation schedules than under the INT and RCA schedules.

The employment effects also mirror the output effects, with sectors experiencing output contraction also experiencing a reduction in employment, and vice versa. Low-skilled labour will be mostly affected due to the effects on the outputs of the sectors where they are concentrated. The welfare impact will be larger for rural households than for urban households. For urban households, some outlier households will face welfare losses in 2025 and 2030. However, the negative welfare effects will turn positive in the transition to 2035 as the AfCFTA benefits expand.

In terms of trade flows, the results show that trade between Nigeria and other AfCFTA member states will expand by 2035. Cameroon, Côte d'Ivoire, Ghana, the rest of Central Africa and the rest of West Africa will experience the largest increase in exports from Nigeria under both the tariff-only and tariffs & NTMs scenarios, and across the four liberalisation schedules. However, the increases in exports under the tariffs & NTMs scenario will be greater than under the tariff-only scenario. Oil, manufacturing products are the commodities that will experience the largest increases in exports. In most cases, the REV schedule will deliver the largest increase in exports, when compared with the other strategies.

The largest increase in imports will come from Côte d'Ivoire, South Africa and the rest of West Africa. However, unlike exports, the increases in imports under the tariff-only scenario will be greater than under the tariffs & NTMs scenario. With respect to commodities imported, the changes expected vary slightly based on the strategy and the scenario. Nevertheless, manufacturing commodities, chemical products, and vegetable oils and fats will be the top commodities to be imported into Nigeria. The top sources of agricultural imports into Nigeria will be Ethiopia, Kenya, Morocco, South Africa and Tanzania. With regard to crops, horticulture and plant-based fibres will experience the largest increase among Nigeria's agricultural imports. For processed foods, across the two scenarios and the four liberalisation strategies, Côte d'Ivoire will be the top source of imports to Nigeria. Vegetable oils and fats, other food products, and beverages and tobacco products are the top commodities in terms of the largest increase among processed food imports.

Based on the findings of the study, it can be concluded that the AfCFTA alone is insufficient to drive economic growth in Nigeria. Complementary policies and measures should be implemented to stimulate growth. Policies to boost key sectors that are negatively affected, including the processed food sector, may be implemented. These measures may include investment in infrastructure and trade logistics, capacity building, institutional reforms and other trade enablers that can enhance Nigeria's competitiveness in the AfCFTA. The outputs of the processed food sector will reduce, while the imports will increase. While the AfCFTA can enhance food security by ensuring that access to imported processed food improves, it is important for policymakers to consider the threats and vulnerabilities that may come with high dependence on food imports. Furthermore, policymakers may consider measures to mitigate the effects of the AfCFTA on low-skilled workers, in the form of reskilling, to facilitate their absorption into expanding sectors.

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1. Introduction

The African Continental Free Trade Area (AfCFTA) came into existence on 21 March 2018, following the signing of the agreement by the Heads of States and Governments of the African Union. This agreement aims to boost intra-African trade and promote regional integration and development. The AfCFTA is the largest free trade area in the world in terms of the number of participating countries (World Bank, 2020). A major benefit of the AfCFTA is the removal of tariffs from about 90 % of goods under the Harmonised System (HS) tariff lines within five years, and 7 % within 10 years. The remaining 3 % (not more than 10 % of the import values from other African countries) are to be excluded from liberalisation. The AfCFTA is expected to enhance the free flow of goods and services across the continent and boost intra-African trade by 52 % by 2022 relative to 2010 levels (UNECA, 2018).

However, the distribution of benefits and costs across AfCFTA members could be uneven (World Bank, 2020), giving rise to concerns among policymakers in different African countries. These concerns delayed the signing of the AfCFTA by Nigeria. Nigeria is the largest economy and the most populous country in Africa. Nigeria's gross domestic product (GDP) of USD 440.83 billion (as at 2021) and estimated population size of 200 million make it a major market for trade and investment in the continent. The economy has gone through two recessions in recent years, during the oil price slump of 2016 (when real GDP fell by 1.6 %) and more recently during the global economic crisis induced by the COVID-19 pandemic (with real GDP falling by 1.8 % in 2020). The economy has since rebounded to a positive growth of 3.40 % in 2021. Still, GDP per capita as at 2021 (USD 2 065.75) had yet to recover to the 2016 level of USD 2 144.78 and remained below the GDP per capita of contemporary countries such as South Africa (USD 7 055.04) and Ghana (USD 2 363.30). According to the Central Bank of Nigeria's Statistical Bulletin([1]), the economy, although largely based on oil and gas, has diversified in recent years. The service sector is the largest contributor to GDP, accounting for 53 % in 2021, followed by the agriculture sector, which contributed 26 %. Mining / crude petroleum and natural gas accounted for 7.3 % in 2021, down from 8.4 % in 2016. Within the agriculture sector, crop production accounts for 90 %, while livestock, forestry and fishing contribute 7 %, 1 %, and 2 %, respectively.

Trade plays a major role in the economy, and import tax accounted for 9.3 % of government revenue as at 2019. Imports and exports accounted for 11.84 % and 10.74 % of GDP, respectively, in 2019. Mining (mainly crude petroleum and natural gas) was the largest export sector in 2019, accounting for 80.3 % of total exports, while manufacturing, services and agriculture accounted for 10.6 %, 7.6 % and 1.5 % of exports, respectively. Manufacturing, services and agriculture accounted for 54.8 %, 41.1 % and 3.7 % of imports, respectively.

The evolution of trade in key import and export commodities between 2018 and 2022 is presented in Table 1. The data show that mineral products have the largest share of total imports in this period. Their proportion in total imports increased from 20.2 % in 2018 to 40.1 % in 2022. The products 'boilers, machinery and appliances, parts' and 'vehicles, aircraft and vessels' also contribute notably to imports, averaging 21.5 % and 10.6 %, respectively. Other products that contribute to imports include chemical products, base metal products, plastic and rubber products, processed foods, beverages and tobacco products, and livestock and animal products. Exports are more concentrated in a single commodity category. Mineral

([1]) https://www.cbn.gov.ng/documents/statbulletin.asp products (mainly crude oil and natural gas) are the major export commodities in Nigeria, averaging at about 90 % between 2018 and 2022. Another key product category, accounting for at least 1 % of total exports, is vehicles, aircraft and vessels, which averaged at about 4 % between 2018 and 2022. All the other products individually account for less than 1 % of total exports.

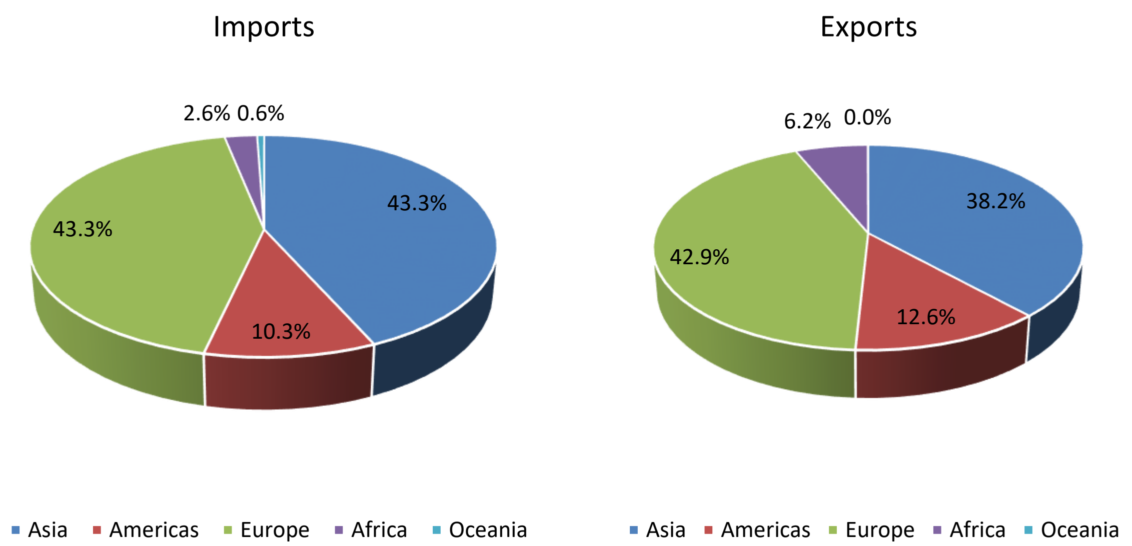
Table 1. Commodity imports and exports as a share (%) of total imports and exports, Nigeria, 2018–2022

Commodity	Imports as a percentage of total imports				
	2018	2019	2020	2021	2022
Mineral products	20.16	16.03	23.35	31.49	40.06
Boilers, machinery and appliances, parts	19.82	26.78	23.85	20.13	16.95
Chemical and allied products	7.53	8.18	11.47	8.63	8.66
Vehicles, aircraft and vessels	15.88	13.87	9.05	7.46	6.57
Vegetables	4.00	3.45	5.90	6.48	5.13
Plastic and rubber	4.61	4.10	4.80	5.57	4.64
Base metals and base metal products	4.87	4.63	5.29	5.09	3.33
Processed foods, beverages and tobacco	4.02	3.99	4.68	4.33	3.82
Livestock and animal products	2.77	2.49	3.58	2.64	2.15
Optical, photographic, cinematographic, etc., appliances	1.53	7.13	2.08	2.14	2.04
Paper and paper products	1.63	2.90	1.49	1.58	1.61
Textiles and textile products	1.28	1.30	1.44	1.34	1.43
	Exports as a percentage of total exports				
Mineral products	94.13	87.17	88.81	89.43	91.02
Vehicles, aircraft and vessels	2.51	6.06	6.72	3.46	1.36
Chemical and allied products	0.41	0.35	0.63	2.15	3.15
Processed foods, beverages and tobacco	0.97	0.91	1.35	1.83	1.51
Vegetables	0.95	0.81	1.52	1.37	1.18
Base metals and base metal products	0.32	4.2	0.28	0.81	0.91
Plastic and rubber	0.22	0.16	0.08	0.24	0.20
Livestock and animal products	0.11	0.08	0.12	0.12	0.09
Textiles and textile products	0.02	0.02	0.05	0.07	0.04
Boilers, machinery and appliances, parts	0.05	0.02	0.14	0.1	0.03
Paper and paper products	0.01	0.01	0.01	0.01	0.01
Optical, photographic, cinematographic, etc., appliances	0.00	0.00	0.02	0.01	0.00

Source: NBS (2023).

Although Nigeria is a major economic player in the continent, less than 10 % of its trade between 2012 and 2018 was with other African countries (Oyelami, 2021). Imports from African countries accounted for only 3 % of total imports in 2017, of which South Africa alone accounts for almost 50 %, while exports to African countries accounted for only 11 % of total exports (Oyelami, 2021). Its main trading partners include China, India, Netherlands, Spain, Belgium, France, Brazil, South Africa (the largest trading partner in Africa) and Côte d'Ivoire (the largest trading partner in the ECOWAS bloc). Data on imports and exports between Nigeria and the rest of the world (ROW) show that 43.3 % of Nigeria's imports come from Asia, 43.3 % from Europe, 10.3 % from the Americas, 2.6 % from Africa and 0.6 % from Oceania (Figure 1). In terms of exports, Europe is the largest destination of Nigeria's products, accounting for 42.9 % of total exports. This is followed by Asia with 38.2 %, Americas with 12.6 %, Africa with 6.2 % and Oceania with less than 0.1% (0.04%).

Figure 1. Nigeria's imports and exports (%) by region, fourth quarter of 2022



Source: NBS (2023).

Despite being the largest economy in the continent, Nigeria was reluctant to sign the AfCFTA agreement until 9 July 2021. This was due to pressure from powerful stakeholders and pressure groups, such as the Manufacturing Association of Nigeria (MAN) and the Nigerian Labour Congress (NLC), which had concerns about the potential effects of the AfCFTA on their economic interests (Dickson, 2018; Famuyiwa, 2019). The AfCFTA has been appraised as a game changer for Africa's regional integration and development. It is expected to raise income by 7 % (almost USD 450 billion) and reduce the number of people living in extreme poverty by 12.6 % (about 40 million people) by 2035 (World Bank, 2020), but the effects on individual countries differ.

Thus, the broad objective of this research is to assess the economy-wide effects of the AfCFTA in Nigeria. The specific research objectives are to (i) examine the macroeconomic effects of the AfCFTA in Nigeria; (ii) analyse the structural and welfare effects of the AfCFTA, with special reference to the agri-food sectors; (iii) evaluate the effects on household welfare and food security; and (iv) assess the effects on Nigeria's imports from and exports to AfCFTA member states.

The rest of the report is arranged as follows. Chapter 2 provides a brief review of literature on trade liberalisation policies, with a focus on economy-wide assessments. Chapter 3 discusses the methodology and data employed, while Chapter 4 presents intra-Africa trade-flow results and all other relevant results. Chapter 5 concludes the report and gives policy recommendations.

2. Overview of the literature on the economic impacts of the AfCFTA

Research on the economic impacts of the AfCFTA has attracted significant attention in recent years. Much of the existing literature presents the findings of global and continent-wide analyses that focus on the aggregate African effects of the AfCFTA (Saygili et al., 2018; Abrego et al., 2019; AfDB, 2019; Wanyonyi and Chemnyongoi, 2020; World Bank, 2020). Abrego et al. (2019) used a computable general equilibrium (CGE) model to simulate the welfare gains from the AfCFTA for 45 countries in the continent. The results show significant potential welfare gains in Africa. Wanyonyi and Chemnyongoi (2020) analysed the economic effects of the AfCFTA with specific emphasis on tariff removal in the Common Market for Eastern and Southern Africa (COMESA) region of Africa. The study used CGE-based simulation with data from the Global Trade Analysis Project (GTAP) 7 database. The results show that the implementation of the AfCFTA by tariff removal would lead to a rise in exports and imports and a fall in import prices within COMESA. The tariff removal would lead to an overall gain in welfare among the African countries, but would marginally lower the welfare of the region.

Some studies have gone further to analyse the impact of the AfCFTA on agri-food systems (Simola et al., 2021; Fusacchia et al., 2022; Simola et al., 2022). Simola et al. (2021) examined the impacts of the AfCFTA on food systems and food security in Africa. The study employed a global, multiregional model to determine the trade-creation and trade-diversion effects. The findings of the study show that the AfCFTA will contribute positively to economic growth through higher levels of value added production and trade diversification. The study predicts that the AfCFTA will lead to a rise in food availability and food consumption. However, agricultural production is predicted to become more concentrated in a few regions for primary agricultural commodities, cereal, oil seeds, dairy products and beef cattle production. Moreover, agricultural production in Africa is predicted to grow less than GDP, indicating that, on average, non-agricultural sectors will become more important in each African country. The study also presents specific results for Nigeria. Some of the main findings specific to Nigeria include that dairy production will increase significantly, intra-imports will grow by 50 % and GDP gains from the AfCFTA will be negligible compared with other African countries.

Bentum-Ennin et al. (2022) investigated the potential benefits of the AfCFTA for the food and beverage sector in Africa. Using simulations to analyse the real benefits of the sector in the context of environmental and import costs, the study shows that the AfCFTA would benefit the food and beverages sector in terms of a reduction in import costs and prices.

Given that these studies provide assessments of the AfCFTA at the continent level, and given the potentially uneven impacts across countries, it is necessary to carry out a country-specific analysis to guide individual country implementation.

Having the largest economy in Africa, Nigeria is poised to play a major role in the AfCFTA. Given the initial opposition to the AfCFTA in the country, it is important to conduct an economy-wide assessment of impacts. Hence, several studies have attempted to assess the AfCFTA in the context of the Nigerian economy. While some studies, such as Omoju and Ikhide (2020), have examined the potential and challenges related to the Nigerian economy harnessing the benefits of the AfCFTA, others have empirically investigated its potential economic impacts (NESG, 2019a; Oyelami, 2021; Chukwu et al., 2022). The Nigeria Economic

Summit Group (NESG) investigated the impacts of the AfCFTA, and other government interventions, on the Nigerian economy, focusing on key macroeconomic variables such as output, imports, exports, investment, government revenue and prices, and household welfare indicators (NESG, 2019a). The study used a single-country CGE model and a 2014 Social Accounting Matrix (SAM) of Nigeria. Six policy scenarios were simulated: (i) a linear tariff cut over the 10-year period of AfCFTA implementation; (ii) front-loading tariff liberalisation; (iii) back-loading tariff liberalisation; (iv) a linear tariff cut in combination with a protection of 10 % of locally produced substitutes categorised as sensitive goods; (v) a linear tariff cut in combination with a 10 % increase in government investment; and (vi) a linear tariff cut in combination with a 5 % increase in foreign capital inflow and labour supply. The study found that the implementation of the AfCFTA will have a negative impact on Nigeria's GDP and that government revenue will decline by 0.13–0.21 % depending on the scenario. The AfCFTA will also marginally increase exports by 0.02 %, while increases in imports from African countries will be at the expense of imports from non-African countries, creating a trade diversion effect. A major limitation of the single-country CGE model used in the study is that the simulations are based on unilateral tariff liberalisation, which does not include the responses from other trade partners and their implications on commodity bilateral trade. In addition, the 2014 SAM used in the study is based on a 2010 supply-and-use table. This SAM thus no longer reflects the current structure of the economy, as several structural changes have occurred in the economy, such as the expanding role of the service sector, the shrinking contribution of the oil and gas sector and changes in the tax system.

In a similar study, the NESG used a CGE model to assess the impacts of the AfCFTA on Nigeria's industrial sectors (NESG, 2019b). The study found that the AfCFTA will have small negative impacts on the industrial sector. The analysis further shows that the AfCFTA will have positive effects on the imports and exports of the industrial sector, while having negative effects on investment, output and employment. The NESG similarly investigated the effects of the AfCFTA on the Nigerian agricultural sector using a CGE model (NESG, 2019c) and found that the AfCFTA will have a negative effect on the agriculture sector, as shown by a marginal decline in agriculture production. The AfCFTA will also make imported agricultural commodities cheaper, thereby disincentivizing local investment and production in the agriculture sector.

Oyelami (2021) examined the trade, welfare and revenue effects of the AfCFTA in Nigeria using the World Trade Integrated Solution Single Market Partial Equilibrium Simulation Tool (WITS-SMART). Contrary to the findings of the study by the NESG (2019a), Oyelami (2021) shows that the AfCFTA will have a positive impact on the Nigerian economy, especially in the areas of trade and welfare. Specifically, it found that it will have positive total trade and welfare effects of USD 145 million and USD 13 million, respectively, while creating a revenue loss of USD 104 million, largely due to tariff removal. There will be trade-creating effects in the petrochemical, textile and maritime products sectors and trade-diverting effects in the sanitary, papers, electronics and automobiles sectors. The revenue losses are driven by the following commodities: yachts and other vessels, sanitary products (pads, tampons, napkins, etc.), fertiliser, propylene and other polymers, odoriferous substances and mixtures, reception apparatus for television and coal. However, the partial equilibrium modelling used in the study failed to capture the responses and feedback from other countries. Furthermore, the effect on revenue in the results may fail to reflect the total revenue effect, as the model largely focused on trade and did not capture the revenue effects from non-trade sources, such as income, indirect taxes and firms. The Centre for the Study of the Economies of Africa also analysed the macroeconomic and welfare effects of the AfCFTA and the effects on small and medium-sized enterprises and microenterprises (CSEA, 2020). For the macroeconomic effects, the study utilised a static global CGE model and found that there will be modest positive welfare effects compared with other African countries. In terms of trade effects, the AfCFTA will result in an increase in exports of food, agriculture commodities, machinery and electrical products, while exports of wood and paper commodities will decline. Imports from Botswana, Burundi, Canada, China, Ghana and Namibia will fall, while imports from Ethiopia, Italy, Japan and Zimbabwe will double.

Mhonyera and Meyer (2023) examined the welfare and trade effects of the AfCFTA for Nigeria and South Africa using a decision-support model and the GTAP CGE model. The results show that the AfCFTA will have positive welfare gains for Nigeria and South Africa. Chukwu et al. (2022) estimated the effects of the AfCFTA on trade, revenue and welfare in Nigeria, applying WITS-SMART anchored on a partial equilibrium model. The results of the study show that the AfCFTA will have a favourable welfare gain of about USD 740.571 million, but Nigeria will sustain losses in trade revenue valued at USD 6 142.061 million.

Based on the review of the available literature, there are empirical analyses on the economy-wide and structural effects of the AfCFTA on the Nigerian economy. However, it is important that the economy-wide impact of the AfCFTA on the Nigerian economy be considered using more recent data and a model that captures the feedback effects from other trading partners. Furthermore, Nigeria has had considerable food security challenges in recent years, owing to the effect of climate change, insecurity and conflict and border closure. It is necessary to explore how the AfCFTA will affect the agriculture and food sectors vis-à-vis other sectors of the economy. These are the gaps that this study will fill.

3. Methodology

3.1. DEMETRA and MAGNET models

This study uses the Dynamic Equilibrium Model for Economic Development Resources and Agriculture (DEMETRA), which is a CGE model ([2]). It also uses the Modular Applied General Equilibrium Tool (MAGNET) model to capture the trade-flow effects. DEMETRA is a single-country, recursive-dynamic, open-economy model. It is a development of the STAGE_DEV model documented in McDonald et al. (2016). Like most other CGE models, DEMETRA is based on neoclassical economic theory. The model assumes perfect competition where no individual producer or consumer can influence market price (price-taker assumption). The small-country hypothesis also holds where domestic price change has no impact on the world market. Producers aim to minimise cost while consumers aim to maximise utility. Economic activities are disaggregated into smaller processes with a combination of value added and intermediate consumption using the nested constant elasticity of substitution (CES) function. The value added is a composite of the factors of production, which are also nested with a CES function. Output is either sold domestically or exported, and this behaviour is depicted by a CES function. The Armington assumption is adopted by which imported and domestic alternatives of a commodity are treated as imperfect substitutes (Armington, 1969). A unique feature of DEMETRA is that it incorporates home production, where marketed and subsistence commodities are separated. The model can allow for different sectors and economic agents, and the results can show impacts at the aggregate, sectoral and economic-agent levels.

The closure rules for DEMETRA are as follows. Investment is driven by savings such that investment is adjusted based on the fixed propensity to save. Exchange rate is variable, while savings of the ROW are fixed. Capital is not mobile, but land and labour are mobile across activities. Government spending on public administration varies based on changes in government revenue, while government spending on education and health is fixed. The producer price index is the numeraire.

DEMETRA, being a single-country model, cannot capture the trade-creation and trade-diversion effects of Nigeria’s liberalisation policy under the AfCFTA. In other words, it cannot detect changes in export demand from other countries. Hence, to capture the changes in export demand and continental commodity prices, DEMETRA is linked to a global model, MAGNET (Woltjer et al., 2014). MAGNET is a global model that captures the impact of the AfCFTA on a global, multiregional level, with the results reflecting changes in bilateral trade across all trading partners as a result of the tariff and non-tariff measure (NTM) liberalisation associated with the AfCFTA. In MAGNET, the changes in Nigeria’s exports are determined by the changes in the imports of all its trading partners, such that price and quantities are determined endogenously.

MAGNET is calibrated on the GTAP 10 database (Aguiar et al., 2019) and simulates similar AfCFTA scenarios to be implemented for DEMETRA. The results (particularly the changes in import prices, tariff and rent-generating NTMs) are then integrated into DEMETRA as

([2]) DEMETRA incorporates a series of additional behavioural relationships that better account for economic relationships in developing countries, such as the dual role of semi-subsistent agricultural households, a nested consumption function, the endogeneity of the functional distribution of income, domestic migration and factor market segmentation. The recursive dynamic version of DEMETRA is derived from the STAGE_DYN model and STAGE_DEV_DYN models. The full model documentation can be accessed at https://datam.jrc.ec.europa.eu/datam/model/DEMETRA/documentation.html.

exogenous shocks. To integrate the results of MAGNET into DEMETRA, the changes in the import prices generated from MAGNET are aggregated into a single trade partner (ROW) for Nigeria, which are then applied as shocks to the exogenous world import prices of DEMETRA. The NTMs are incorporated as rent-generating and iceberg costs. Rent-generating NTMs are expressed as *ad-valorem* equivalents (ave) and are applied similarly to import duties on an ad-valorem basis, generating additional government revenue. Iceberg costs are implemented as efficiency parameters which influence the equivalent quantity of imports impacted by NTMs ([3]). After including the price and NTM changes in DEMETRA, the import volumes are determined following the Armington hypothesis. The same trade elasticities derived from the GTAP database are used in MAGNET and DEMETRA.

For export, the study follows the approach of Horridge and Zhai (2006) further adapted to the AfCFTA case in Nechifor et al. (2022) for Kenya and Maskaeva et al. (2024) for Tanzania. The approach introduces an endogenous export demand function (see Equation 1). Based on Equation 1, the export quantity and price information obtained from MAGNET are integrated to exogenously shift the export demand due to trade relations induced by the AfCFTA across the region and in the ROW (Equation 2).

$$QE = \left(\frac{FP}{PWE}\right)^{\frac{1}{ESUBM}} \tag{1}$$

$$\Delta FP = \left(\frac{QE_{magnet}}{QE_{base}}\right)^{\frac{1}{ESUBM}} \times \frac{PE_{magnet}}{PE_{base}} \tag{2}$$

where *QE* is export of commodity, *PWE* is world export price and *PE* is export price.

3.2. Data

CGE models are calibrated on Social Accounting Matrices (SAMs). A SAM describes the interrelations among economic agents, sectors and factors of production. The most widely available and used SAM for Nigeria was published in 2010 based on 2006 national accounts (Nwafor et al., 2010). Recent studies that have used this SAM, such as Omoju et al. (2020) and Ikhide et al. (2021), and have updated it using the cross-entropy method (Lemelin et al., 2013).

For this study, a new 2019 SAM was constructed (El Meligi et al., 2024). The data used for constructing the SAM were obtained from various sources, including the National Bureau of Statistics, the United Nations Statistics Division database, the balance of payments extracted from the International Monetary Fund data warehouse and other sources. The SAM contains a total of 49 activities (of which 6 are home producers), 67 marketed commodities (22 home-consumed commodities), 12 household categories and 36 labour groups. The 12 household categories are based on the 6 geopolitical zones of Nigeria (North Central, North East, North West, South East, South South, South West). The 36 labour categories are based on the 6 geopolitical zones, rural–urban divide and skills level (skilled, semi-skilled and low-skilled). Other key modules of the SAM include government, ROW, taxes and savings/investment.

[3] This goes along with the assumption that due to the NTMs, imports 'melt' i.e. diminish in value, due to transit time.

3.3. Definition of scenarios

The scenarios analysed in this study are used to examine the potential impacts of the AfCFTA based on expected government policy actions. For instance, it is expected that the implementation of the AfCFTA will lead to a reduction in government revenue through a reduction in custom duties (Oyelami, 2021). Given the limited fiscal space, it is envisaged that the government will respond to this revenue shortfall and aim to implement strategies to minimise the revenue losses.

The impacts of the AfCFTA on the Nigerian economy are examined across four liberalisation schedules:

1. Liberalisation based on revenue maximisation from tariffs (REV). This liberalisation schedule aims to maximise government revenue or minimise government revenue losses resulting from the AfCFTA. This is the primary liberalisation schedule, as the government's main concern relates to revenue loss from the AfCFTA.
2. Liberalisation based on agricultural trade (AGR). Here, the primary objective is full liberalisation of agri-food tariffs. Agri-food tariffs are fully liberalised with the objective of promoting food access and security. Government revenue maximisation is the secondary objective.
3. Liberalisation based on intermediate inputs trade (INT). The primary objective here is the liberalisation of intermediate inputs, with the main goal of promoting industrialisation. Maximisation of government revenue becomes the secondary objective.
4. Revealed comparative advantage commodity trade (RCA). Here, the primary objective is improving trade of competitive sectors, while the maximisation of government revenue is the secondary objective. Under this schedule, sectors with the revealed comparative advantage are fully liberalised across the continent.

For each of the liberalisation schedules, the study simulates tariff-only and tariffs & NTMs scenarios up to 2035. The tariff-only scenario involves fully liberalising 90 % of HS 6-digit level tariff lines within five years, liberalising another 7 % of tariff lines within a longer time frame of 10 years, and exclusion of the remaining 3 % of tariff lines from liberalisation on national security and other grounds. The excluded tariff lines must not be more than 10 % of total import value. The tariff and NTMs scenario assumes that tariffs are liberalised and NTM-related costs are reduced in the same period. The NTMs include both rent-generating NTMs (assuming all rents go to the government) and efficiency losses (iceberg costs). Following Simola et al. (2021), the NTMs are assumed to reduce by 50 % for intra-African trade and 25 % for trade between Africa and the ROW between 2025 and 2035.

4. Results

This chapter presents the results of the simulations based on MAGNET and DEMETRA. MAGNET results show the effect of the AfCFTA on trade flows (Section 4.1), while DEMETRA results show the effect on the domestic economy, including on core economic indicators (Section 4.2).

4.1. Impact on intra-Africa trade flows

The results of this section are based on MAGNET and show the trade-flow effects of the AfCFTA on the Nigerian economy. Specifically, the results present how the AfCFTA will affect the flow of trade between Nigeria and other African countries under the tariff-only and tariffs & NTMs scenarios.

4.1.1. Export flows and destinations

The AfCFTA will increase Nigeria's intra-African exports by 2035 under all the liberalisation strategies (Table 2).

In terms of changes in Nigeria's exports to other AfCFTA states, exports (in absolute value) will increase most to Côte d'Ivoire, Ghana, Cameroon, the rest of central Africa and the rest of West Africa across both scenarios. In addition, the increases in exports to these countries will be higher under the tariffs & NTMs scenario than under the tariff-only scenario, except in the case of the rest of central Africa. For instance, under the REV schedule, Nigeria's exports to the rest of West Africa will increase by USD 1.64 billion under the tariff-only scenario and by USD 1.82 billion under the tariffs & NTMs scenario. This suggests that reducing NTM-related costs in addition to tariff liberalisation could enhance Nigeria's intra-Africa exports to top trading partners, compared with the tariff-only liberalisation scenario.

For the tariffs & NTMs scenario, under the REV schedule, Nigeria's exports to the rest of West Africa, Ghana, Côte d'Ivoire, the rest of central Africa and Cameroon will increase by USD 1.82 billion, USD 1.60 billion, USD 0.93 billion, USD 0.56 billion and USD 0.47 billion, respectively. The changes in exports under the AGR strategy are similar to those under the REV schedule. Exports to the rest of West Africa will increase by USD 1.80 billion, and by USD 1.57 billion to Ghana, by USD 0.89 billion to Côte d'Ivoire, by USD 0.55 billion to the rest of central Africa and by USD 0.49 billion to Cameroon. Under the INT strategy, Nigeria's exports will increase by USD 1.77 billion to the rest of West Africa, by USD 1.58 billion to Ghana, by USD 0.91 billion to Côte d'Ivoire, by USD 0.58 billion to the rest of central Africa and by USD 0.47 billion to Cameroon. Finally, exports will increase by USD 1.81 billion, USD 1.60 billion, USD 0.89 billion, USD 0.56 billion and USD 0.47 billion to the rest of West Africa, Ghana, Côte d'Ivoire, the rest of central Africa and Cameroon, respectively.

The top three exported commodities are similar under both scenarios and across all the liberalisation strategies (Table 3). Under the tariff-only and the tariffs & NTMs scenarios, the top three commodities with the largest absolute increases in exports are oil, manufacturing commodities and light manufacturing commodities. The increases in the exports of these commodities are higher under the tariffs & NTMs scenario than under the tariff-only scenario. The increase in exports of oil products is greater under the REV strategy. The increase in exports of manufacturing commodities is higher under the INT scenario, while increases for other products are higher under the RCA strategy.

Table 2. Top changes in Nigeria's exports by destination, 2035 (USD billion)

REV		AGR		INT		RCA	
Tariff-only							
Rest of West Africa	1.64	Rest of West Africa	1.62	Rest of West Africa	1.59	Rest of West Africa	1.63
Ghana	1.57	Ghana	1.54	Ghana	1.55	Ghana	1.57
Côte d'Ivoire	0.76	Côte d'Ivoire	0.72	Côte d'Ivoire	0.74	Côte d'Ivoire	0.72
Rest of central Africa	0.59	Rest of central Africa	0.58	Rest of central Africa	0.62	Rest of central Africa	0.60
Cameroon	0.44	Cameroon	0.46	Cameroon	0.44	Cameroon	0.44
Tariffs & NTMs							
Rest of West Africa	1.82	Rest of West Africa	1.80	Rest of West Africa	1.77	Rest of West Africa	1.81
Ghana	1.60	Ghana	1.57	Ghana	1.58	Ghana	1.60
Côte d'Ivoire	0.93	Côte d'Ivoire	0.89	Côte d'Ivoire	0.91	Côte d'Ivoire	0.89
Rest of central Africa	0.56	Rest of central Africa	0.55	Rest of central Africa	0.58	Rest of central Africa	0.56
Cameroon	0.47	Cameroon	0.49	Cameroon	0.47	Cameroon	0.47

Source: MAGNET results.

Table 3. Top changes in Nigeria's exports by commodity, 2035 (USD billion)

REV		AGR		INT		RCA	
Tariff-only							
Oil	14.83	Oil	14.79	Oil	14.81	Oil	14.80
Manufacturing	6.40	Manufacturing	6.37	Manufacturing	6.42	Manufacturing	6.37
Light manufacturing	1.52	Light manufacturing	1.52	Light manufacturing	1.57	Light manufacturing	1.60
Tariffs & NTMs							
Oil	15.24	Oil	15.21	Oil	15.22	Oil	15.21
Manufacturing	6.46	Manufacturing	6.42	Manufacturing	6.47	Manufacturing	6.42
Light manufacturing	1.63	Light manufacturing	1.63	Light manufacturing	1.67	Light manufacturing	1.71

Source: MAGNET results.

4.1.1.1. Agricultural commodity export flows and destinations

In line with aggregate exports, the exports of agricultural commodities to AfCFTA member states will also increase by 2035, but the increase will be much smaller (Table 4). Similar to aggregate export flows, the increases in agricultural exports are higher under the tariffs & NTMs scenario than under the tariff-only scenario. However, under both scenarios, the countries with the largest absorption of Nigeria's agricultural exports will vary according to the strategy adopted. For the tariffs & NTMs scenario, under the REV schedule, exports of agricultural commodities to the rest of West Africa will increase by USD 1.72 million, to the rest of central Africa by USD 0.40 million, to the rest of North Africa by USD 0.16 million, to Senegal by USD 0.07 million and to Cameroon by USD 0.03 million. Under the AGR strategy, agricultural exports to the rest of West Africa will increase by USD 1.51 million, followed by Tunisia (by USD 0.35 million), the rest of central Africa (by USD 0.30 million), Morocco (by USD 0.21 million) and the rest of North Africa (by USD 0.16 million). For the INT strategy, agricultural exports to the rest of West Africa will increase by USD 1.69 million, followed by the rest of central Africa (USD 0.40 million), Tunisia (USD 0.29 million), the rest of North Africa (USD 0.15 million) and Senegal (USD 0.06 million). Under the RCA strategy, agricultural exports to the rest of West Africa will increase by USD 1.72 million, to the rest of central Africa by USD 0.40 million, to the rest of North Africa by USD 0.16 million, to Senegal by USD 0.07 million and to Cameroon by USD 0.03 million.

Table 4. Top changes in Nigeria's agricultural exports by destination, 2035 (USD million)

REV		AGR		INT		RCA	
Tariff-only							
Rest of West Africa	1.58	Rest of West Africa	1.40	Rest of West Africa	1.57	Rest of West Africa	1.60
Rest of central Africa	0.40	Tunisia	0.31	Rest of central Africa	0.41	Rest of central Africa	0.40
Rest of North Africa	0.20	Rest of central Africa	0.30	Tunisia	0.26	Rest of North Africa	0.20
Senegal	0.07	Morocco	0.22	Rest of North Africa	0.20	Senegal	0.07
Cameroon	0.03	Rest of North Africa	0.20	Senegal	0.07	Cameroon	
Tariffs & NTMs							
Rest of West Africa	1.72	Rest of West Africa	1.51	Rest of West Africa	1.69	Rest of West Africa	1.72
Rest of central Africa	0.40	Tunisia	0.35	Rest of central Africa	0.40	Rest of central Africa	0.40
Rest of North Africa	0.16	Rest of central Africa	0.30	Tunisia	0.29	Rest of North Africa	0.16
Senegal	0.07	Morocco	0.21	Rest of North Africa	0.15	Senegal	0.07
Cameroon	0.03	Rest of North Africa	0.16	Senegal	0.06	Cameroon	0.03

Source: MAGNET results.

In terms of the top agricultural commodities exported, horticulture, oil seed and cereal grains show the largest increases in exports, and the increases are larger under the tariffs & NTMs scenario than under the tariff-only scenario (Table 5). Under the tariff-only scenario, horticulture exports will increase by USD 4.07 million, USD 3.80 million, USD 4.05 million and USD 4.07 million under the REV, AGR, INT and RCA schedules, respectively, and oil seed exports will increase by USD 2.38 million, USD 2.69 million, USD 2.64 million and USD 2.38 million under the four liberalisation schedules, respectively. The exports of cereal grains will increase by USD 2.08 million across all the liberalisation schedules. Under the tariffs & NTMs scenario, exports of horticulture commodities will rise by as much as USD 4.24 million under the REV and RCA schedules. Similarly, the exports of oil seed will increase by as much as USD 2.75 million under the AGR schedule. Finally, exports of cereal grains will increase by approximately USD 2.22 million under all the liberalisation schedules.

Table 5. Top changes in Nigeria's agricultural exports by commodity, 2035 (USD million)

REV		AGR		INT		RCA	
Tariff-only							
Horticulture	4.07	Horticulture	3.80	Horticulture	4.05	Horticulture	4.07
Oil seed	2.38	Oil seed	2.69	Oil seed	2.64	Oil seed	2.38
Cereal grains	2.08	Cereal grains	2.08	Cereal grains	2.08	Cereal grains	2.08
Tariffs & NTMs							
Horticulture	4.24	Horticulture	3.95	Horticulture	4.22	Horticulture	4.24
Oil seed	2.41	Oil seed	2.75	Oil seed	2.68	Oil seed	2.41
Cereal grains	2.22	Cereal grains	2.21	Cereal grains	2.22	Cereal grains	2.22

Source: MAGNET results.

4.1.1.2. Processed food export flows and destinations

Export destinations of Nigeria's processed food commodities are homogeneous. Across all four strategies and the two scenarios, Ghana, the rest of West Africa and Côte d'Ivoire experience the largest increases in processed food exports, as seen in Table 6. The increases in exports under the tariffs & NTMs scenario are greater than the increases in exports under the tariff-only scenario. For the tariffs & NTMs scenario, under all strategies, processed food exports to Ghana will increase by USD 0.46–0.49 billion. Nigeria's exports of processed foods to the rest of West Africa will increase by USD 0.25–0.27 billion. Similarly, Nigeria's exports of processed foods to Côte d'Ivoire will increase by USD 0.09–0.10 billion. Exports to Morocco will also see an increase, of USD 0.02–0.03 billion. Under the REV, INT and RCA strategies, exports of processed foods to Burkina Faso will increase by USD 0.01 billion. Under the AGR strategy, exports of processed foods to Cameroon will increase by USD 0.03 billion.

Table 6. Top changes in Nigeria's processed food exports by destination, 2035 (USD billion)

REV		AGR		INT		RCA	
Tariff-only							
Ghana	0.36	Ghana	0.33	Ghana	0.36	Ghana	0.36
Rest of West Africa	0.25	Rest of West Africa	0.23	Rest of West Africa	0.24	Rest of West Africa	0.25
Côte d'Ivoire	0.08	Côte d'Ivoire	0.08	Côte d'Ivoire	0.08	Côte d'Ivoire	0.08
Burkina Faso	0.01	Cameroon	0.02	Burkina Faso	0.01	Burkina Faso	0.01
South Africa	0.01	Burkina Faso	0.01	Morocco	0.01	Morocco	0.01
Tariffs & NTMs							
Ghana	0.49	Ghana	0.46	Ghana	0.49	Ghana	0.49
Rest of West Africa	0.27	Rest of West Africa	0.25	Rest of West Africa	0.26	Rest of West Africa	0.27
Côte d'Ivoire	0.10	Côte d'Ivoire	0.09	Côte d'Ivoire	0.10	Côte d'Ivoire	0.10
Morocco	0.02	Morocco	0.03	Morocco	0.03	Morocco	0.03
Burkina Faso	0.01	Cameroon	0.03	Burkina Faso	0.01	Burkina Faso	0.01

Source: MAGNET results.

Beverages and tobacco products, other food products and dairy products are the top three processed food exports in terms of absolute value increase (Table 7). Under the tariff-only scenario, beverages and tobacco products, other food products and dairy products are in that order consistently in the top three. The exports of beverages and tobacco products will increase by USD 0.91–0.93 billion, the exports of other food products will increase by USD 0.81–0.85 billion and the exports of dairy products will increase by USD 0.17–0.18 billion. However, under the tariffs & NTMs scenario, the order of the top three processed food exports depends on the strategy adopted. Under the REV strategy, other food products (USD 1 billion), beverages and tobacco products (USD 1 billion) and dairy products (USD 0.18 billion) are the top three processed food exports. However, beverages and tobacco products show the largest increase in processed food product exports under the AGR and INT strategies.

Table 7. Top changes in Nigeria's processed food exports by commodity, 2035 (USD billion)

REV		AGR		INT		RCA	
Tariff-only							
Beverages and tobacco	0.91	Beverages and tobacco	0.93	Beverages and tobacco	0.92	Beverages and tobacco	0.92
Other food products	0.85	Other food products	0.81	Other food products	0.84	Other food products	0.85
Dairy products	0.18	Dairy products	0.17	Dairy products	0.18	Dairy products	0.18
Tariffs & NTMs							
Other food products	1.00	Beverages and tobacco	1.02	Beverages and tobacco	1.00	Other food products	1.01
Beverages and tobacco	1.00	Other food products	0.96	Other food products	1.00	Beverages and tobacco	1.00
Dairy products	0.18	Dairy products	0.18	Dairy products	0.18	Dairy products	0.18

Source: MAGNET results.

4.1.2. Import flows and sources

The AfCFTA will also increase Nigeria's imports by 2035 (Table 8). In terms of the expected sources of imports to Nigeria in 2035, the strategies seem to deliver similar outcomes. Nigeria's imports will increase mostly from South Africa, Côte d'Ivoire, the rest of West Africa, Morocco and Ghana. However, in the case of imports, unlike exports, the tariffs & NTMs scenario does not yield a larger increase than the tariff-only scenario. For instance, the increase in imports from Côte d'Ivoire under the tariff-only scenario (USD 0.78 billion) will be higher than under the tariffs & NTMs scenario (USD 0.76 billion) in the INT strategy. Under the tariff-only scenario, South Africa (USD 0.84 billion), Côte d'Ivoire (USD 0.78 billion), the rest of West Africa (USD 0.22 billion), Ghana (USD 0.12 billion) and Morocco (USD 0.11 billion) are the top five countries/regions with the largest increase in imports to Nigeria in the REV strategy. The situation is similar under the RCA strategy.

Table 8. Top changes in **Nigeria's imports by source, 2035 (USD billion)**

REV		AGR		INT		RCA	
Tariff-only							
South Africa	0.84	South Africa	0.85	Côte d'Ivoire	0.78	South Africa	0.82
Côte d'Ivoire	0.78	Côte d'Ivoire	0.78	South Africa	0.47	Côte d'Ivoire	0.78
Rest of West Africa	0.22	Rest of West Africa	0.22	Rest of West Africa	0.22	Rest of West Africa	0.22
Ghana	0.12	Morocco	0.12	Morocco	0.13	Ghana	0.12
Morocco	0.11	Ghana	0.12	Ghana	0.12	Morocco	0.11
Tariffs & NTMs							
South Africa	0.90	South Africa	0.91	Côte d'Ivoire	0.76	South Africa	0.88
Côte d'Ivoire	0.76	Côte d'Ivoire	0.76	South Africa	0.52	Côte d'Ivoire	0.76
Rest of West Africa	0.21	Rest of West Africa	0.22	Rest of West Africa	0.22	Rest of West Africa	0.21
Morocco	0.13	Morocco	0.14	Morocco	0.14	Morocco	0.13
Ghana	0.12	Ghana	0.11	Ghana	0.12	Ghana	0.12

Source: MAGNET results.

In the tariffs & NTMs scenario, under the REV schedule, Nigeria's imports from South Africa will increase by USD 0.90 billion, followed by Côte d'Ivoire (USD 0.76 billion), the rest of West Africa (USD 0.21 billion), Morocco (USD 0.13 billion) and Ghana (USD 0.12 billion). The situation is similar under the AGR schedule, with increases in imports from South Africa (USD 0.91 billion), Côte d'Ivoire (USD 0.76 billion), the rest of West Africa (USD 0.22 billion), Morocco (USD 0.14 billion) and Ghana (USD 0.11 billion). Côte d'Ivoire overtook South Africa to see the largest increase in exports to Nigeria under the INT schedule. Nigeria's imports from Côte d'Ivoire will increase by USD 0.76 billion, followed by USD 0.52 billion from South Africa, USD 0.22 billion from the rest of West Africa, USD 0.14 billion from Morocco and USD 0.12 billion from Ghana. Under the RCA strategy, Nigeria's imports from South Africa will increase by USD 0.88 billion, followed by USD 0.76 billion from Côte d'Ivoire, USD 0.21 billion from Rest of West Africa, USD 0.13 billion from Morocco and USD 0.12 billion from Ghana.

Table 9. Top changes in Nigeria's imports by commodity, 2035 (USD billion)

REV		**AGR**		**INT**		**RCA**	
Tariff-only							
Manufacturing	1.98	Manufacturing	1.89	Manufacturing	1.67	Manufacturing	1.96
Vegetable oils and fats	0.82	Vegetable oils and fats	0.82	Chemical	0.85	Chemical	0.82
Chemical	0.82	Chemical	0.81	Vegetable oils and fats	0.82	Vegetable oils and fats	0.82
Tariffs & NTMs							
Manufacturing	2.00	Manufacturing	1.92	Manufacturing	1.68	Manufacturing	1.98
Chemical	0.82	Chemical	0.81	Chemical	0.85	Chemical	0.82
Vegetable oils and fats	0.80	Vegetable oils and fats	0.80	Vegetable oils and fats	0.80	Vegetable oils and fats	0.80

Source: MAGNET results.

The commodities imported vary slightly depending on the strategy and the scenario. Nevertheless, manufacturing commodities, chemical products, and vegetable oils and fats are the top commodities to be imported into Nigeria (Table 9). In the tariff-only scenario and under the REV strategy, imports of manufacturing commodities, vegetable fats and oils, and chemical products will increase by USD 1.98 billion, USD 0.82 billion and USD 0.82 billion, respectively. The imports of chemical products will increase by USD 0.82–0.85 billion, with the highest increase being under the INT strategy. Meanwhile, under the tariffs & NTMs scenario, manufacturing commodities, chemical products, and vegetable fats and oils will experience an increase in imports to the tune of USD 1.68–2.00 billion, USD 0.81–0.85 billion and USD 0.80 billion, respectively.

4.1.2.1. Agricultural commodity import flows and sources

The top sources of agricultural imports into Nigeria will be Morocco, Kenya, South Africa, Tanzania and Ethiopia (Table 10). In the tariff-only scenario, and under the REV and INT schedules, agricultural imports will increase by USD 0.03 billion (Morocco and Kenya) and USD 0.01 billion (South Africa, Tanzania and Ethiopia). Overall, Nigeria's largest increase in agricultural imports will come from South Africa under the AGR schedule (USD 0.08 billion).

Table 10. Top changes in Nigeria's agricultural imports by source, 2035 (USD billion)

REV		AGR		INT		RCA	
Tariff-only							
Morocco	0.03	South Africa	0.08	Morocco	0.03	Morocco	0.03
Kenya	0.03	Kenya	0.03	Kenya	0.03	Kenya	0.03
South Africa	0.01	Morocco	0.03	South Africa	0.01	South Africa	0.01
Tanzania	0.01	Tanzania	0.01	Tanzania	0.01	Tanzania	0.01
Ethiopia	0.01	Ethiopia	0.01	Ethiopia	0.01	Ethiopia	0.01
Tariffs & NTMs							
Morocco	0.05	South Africa	0.09	Morocco	0.05	Morocco	0.05
Kenya	0.03	Morocco	0.05	Kenya	0.03	Kenya	0.03
South Africa	0.02	Kenya	0.03	South Africa	0.02	South Africa	0.02
Tanzania	0.01	Tanzania	0.01	Tanzania	0.01	Tanzania	0.01
Ethiopia	0.01	Ethiopia	0.01	Ethiopia	0.01	Ethiopia	0.01

Source: MAGNET results.

In the tariffs & NTMs scenario, under the REV strategy, Nigeria's imports of agricultural commodities will increase mostly from Morocco, by USD 0.05 billion. This is followed by imports from Kenya (USD 0.03 billion), South Africa (USD 0.02 billion), Tanzania (USD 0.01 billion) and Ethiopia (USD 0.01 billion). South Africa will see the largest increase in demand for agricultural commodities from Nigeria under the AGR strategy. Here, imports of agricultural commodities from South Africa will increase by USD 0.09 billion, followed by Morocco (USD 0.05 billion), Kenya (USD 0.03 billion), Tanzania (USD 0.01 billion) and Ethiopia (USD 0.01 billion). The results are similar under the INT and RCA strategies. Agricultural imports from Morocco will increase by USD 0.05 billion, followed by Kenya (USD 0.03 billion), South Africa (USD 0.02 billion), Tanzania (USD 0.01 billion) and Ethiopia (USD 0.01 billion).

For the agricultural products, crops, horticulture and plant-based fibres will experience the largest increase in Nigeria's agricultural imports. The increase in crop imports will be approximately USD 0.22 billion across the four liberalisation strategies (Table 11). For horticulture, the increase in agricultural imports will range from USD 0.19 billion to USD 0.26 billion, while the imports of plant-based fibres will be approximately USD 0.08 billion.

Table 11. Top changes in Nigeria's agricultural imports by commodity, 2035 (USD billion)

REV		AGR		INT		RCA	
Tariff-only							
Crop n.e.c.	0.22	Horticulture	0.26	Crop n.e.c.	0.22	Crop n.e.c.	0.22
Horticulture	0.19	Crop n.e.c.	0.22	Horticulture	0.19	Horticulture	0.19
Plant-based fibres	0.08	Plant-based fibres	0.08	Plant-based fibres	0.08	Plant-based fibres	0.08
Tariffs & NTMs							
Crops n.e.c.	0.22	Horticulture	0.26	Crops n.e.c.	0.22	Crops n.e.c.	0.23
Horticulture	0.19	Crop n.e.c.	0.22	Horticulture	0.19	Horticulture	0.19
Plant-based fibres	0.08	Plant-based fibres	0.08	Plant-based fibres	0.08	Plant-based fibres	0.08

Source: MAGNET results.

4.1.2.2. Processed food import flows and sources

The largest increase in Nigeria's processed food imports will come from Côte d'Ivoire, Ghana, South Africa, the rest of West Africa and Morocco (Table 12). Across the two scenarios and the four liberalisation schedules, Côte d'Ivoire is the top source of processed food imports to Nigeria. Processed food imports to Nigeria from Côte d'Ivoire will increase by about

USD 0.57 billion under the tariff-only scenario. Ghana is the next top source, with imports increasing by USD 0.06 billion.

Table 12. **Top changes in Nigeria's processed food imports by source, 2035 (USD billion)**

REV		AGR		INT		RCA	
Tariff-only							
Côte d'Ivoire	0.57	Côte d'Ivoire	0.57	Côte d'Ivoire	0.57	Côte d'Ivoire	0.57
Ghana	0.06	Ghana	0.06	Ghana	0.06	Ghana	0.06
Rest of West Africa	0.05	Morocco	0.05	Rest of West Africa	0.05	Rest of West Africa	0.05
Morocco	0.04	Rest of West Africa	0.05	Morocco	0.04	Morocco	0.04
South Africa	0.04	South Africa	0.05	South Africa	0.03	South Africa	0.04
Tariffs & NTMs							
Côte d'Ivoire	0.55	Côte d'Ivoire	0.55	Côte d'Ivoire	0.55	Côte d'Ivoire	0.55
Ghana	0.06	South Africa	0.06	Ghana	0.06	Ghana	0.06
South Africa	0.05	Ghana	0.06	Rest of West Africa	0.05	South Africa	0.05
Rest of West Africa	0.05	Morocco	0.06	Morocco	0.04	Rest of West Africa	0.05
Morocco	0.05	Rest of West Africa	0.05	South Africa	0.04	Morocco	0.05

Source: MAGNET results.

Under the tariffs & NTMs scenario, Côte d'Ivoire will see the largest increase in imports of processed foods from Nigeria across the four liberalisation strategies, with imports increasing by USD 0.55 billion under each of the strategies. Ghana will see the second largest increase, of USD 0.06 billion, under the REV, INT and RCA strategies, while South Africa will see the second largest increase under the AGR schedule. Under the REV strategy, South Africa, the rest of West Africa and Morocco complete the top five countries with the largest increases in processed food exports to Nigeria (USD 0.05 billion each). Ghana (USD 0.06 billion), Morocco (USD 0.06 billion) and the rest of West Africa (USD 0.05 billion) follow Côte d'Ivoire and South Africa to make up the top five sources of processed food exports to Nigeria under the AGR strategy. The remaining three of the top five source countries/regions under the INT strategy are the rest of West Africa (USD 0.05 billion), Morocco (USD 0.04 billion) and South Africa (USD 0.04 billion). Finally, South Africa (USD 0.05 billion), the rest of West Africa (USD 0.05 billion) and Morocco (USD 0.05 billion) complete the top five sources under the RCA strategy.

Table 13. Top changes in Nigeria's processed food imports by commodity, 2035 (USD billion)

REV		AGR		INT		RCA	
Tariff-only							
Vegetable oils and fats	0.82	Vegetable oils and fats	0.82	Vegetable oils and fats	0.82	Vegetable oils and fats	0.82
Other food products	0.40	Other food products	0.43	Other food products	0.40	Other food products	0.40
Beverages and tobacco	0.18	Beverages and tobacco	0.18	Beverages and tobacco	0.17	Beverages and tobacco	0.18
Tariffs & NTMs							
Vegetable oils and fats	0.80	Vegetable oils and fats	0.80	Vegetable oils and fats	0.80	Vegetable oils and fats	0.80
Other food products	0.40	Other food products	0.42	Other food products	0.40	Other food products	0.40
Beverages and tobacco	0.17	Beverages and tobacco	0.18	Beverages and tobacco	0.16	Beverages and tobacco	0.17

Source: MAGNET results.

For commodities, the processed food commodities with the largest increases in imports to Nigeria are vegetable oils and fats, other food products, and beverages and tobacco products (Table 13). Under the tariff-only scenario, imports of vegetable oils and fats, other food products, and beverages and tobacco products will increase by USD 0.82 billion, USD 0.40–0.43 billion and USD 0.17–0.18 billion, respectively. Under the tariffs & NTMs scenario, imports of vegetable oils and fats, other food products, and beverages and tobacco products will increase by USD 0.80 billion, USD 0.40–0.42 billion and USD 0.16–0.18 billion, respectively.

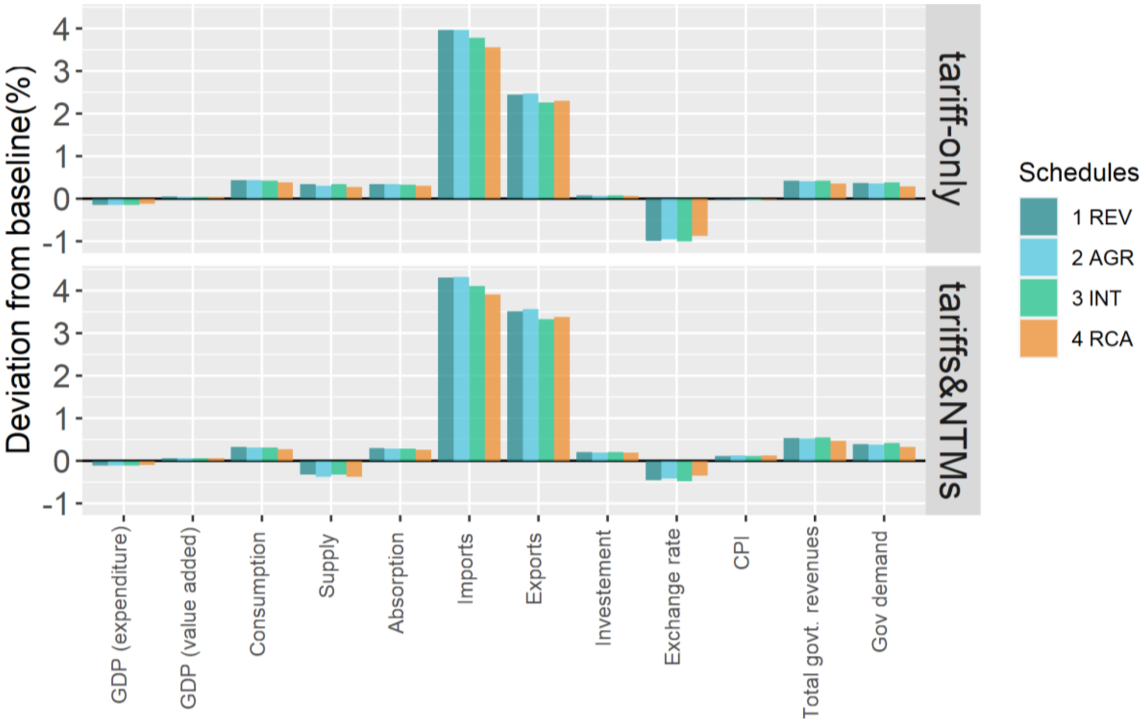
4.2. Impacts for the Nigerian economy

4.2.1. Impact on core macroeconomic indicators

The aggregated macroeconomic impacts of the AfCFTA on the Nigerian economy are shown in Figure 2. The overall effect of the AfCFTA on GDP is mixed, depending on the method of GDP calculation. Based on GDP by expenditure, GDP will fall by 0.1–0.2 %, with the REV schedule having the largest negative effect. The negative effect on GDP (by expenditure) is more pronounced under the tariff-only scenario than under the tariffs & NTMs scenario. In contrast, when GDP by value added is considered, the AfCFTA has a moderately positive effect. GDP by value added will increase by 0.05 % under the tariff-only scenario and by 0.07 % under the tariffs & NTMs scenario.

The AfCFTA also leads to an increase in consumption, of 0.3–0.4 %, under the tariff-only scenario, but the effect is smaller under the tariffs & NTMs scenario (0.25–0.3 %). Under both scenarios, the REV schedule has a higher consumption effect, while the RCA schedule has the smallest effect. Imports and exports will grow under both scenarios and in all the liberalisation schedules, with imports expanding more. Under the tariff-only scenario, aggregate imports will grow by 3.5–3.9 %, but the effect will increase to 3.8–4.3 % under the tariffs & NTMs scenario. The effect on imports is larger under the REV and AGR schedules. Exports will also increase under both scenarios, but not by as much as imports. Exports will increase by 2.2–2.4 % under the tariff-only scenario and by 3.3–3.6 % under the tariffs & NTMs scenario, with the AGR schedule having the largest effect.

Figure 2. Aggregated macroeconomic impacts of the AfCFTA in 2035

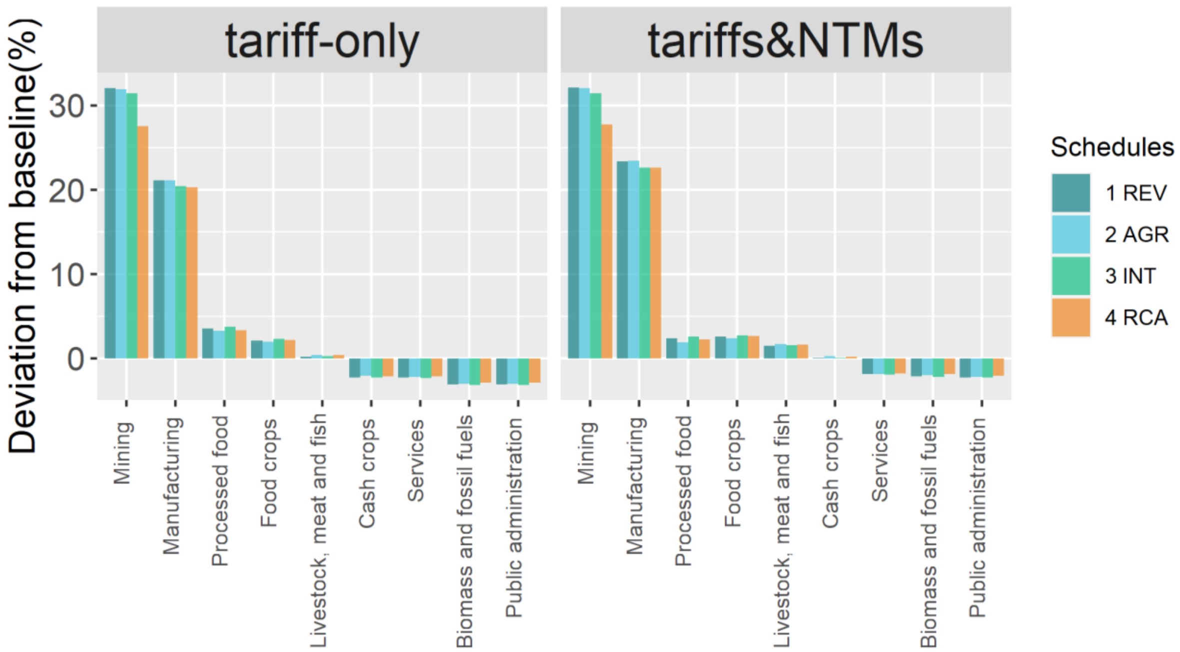


Source: DEMETRA results.

4.2.2. Impacts on commodity imports and exports

The impact of the AfCFTA on exports of the main commodity groups is mixed. While the exports of some commodities show a significant increase, the exports of others show a drop. Based on the results shown in Figure 3, the exports of manufacturing commodities, processed foods, food crops, and livestock, meat and fish will increase under both the tariff-only and tariffs & NTMs scenarios, and across all liberalisation schedules. In contrast, the exports of mining commodities, cash crops, services, biomass and fossil fuels, and public administration will fall. Specifically, exports of manufacturing commodities will increase by 22–24 % under the tariff-only scenario and by 24–26 % under the tariffs & NTMs scenario. The largest effect is seen under the REV and AGR schedules. Exports of processed food will also increase, by 3.5–4 % under the tariff-only scenario and by 2–2.5 % under the tariffs & NTMs scenario, with the largest effect being seen under the INT schedule. Exports of food crops, and livestock, meat and fish will also increase, with the increase being particularly pronounced under the tariffs & NTMs scenario. Exports of food crops will increase by 2–2.5 % under the tariff-only scenario and by 2.5–2.7 % under the tariffs & NTMs scenario, while exports of livestock, meat and fish will increase by 0.5 % and 2 % under these scenarios, respectively. Exports of commodities such as mining commodities, cash crops, services, biomass and fossil fuels, and public administration, which will decline under the tariff-only scenario, will either increase or decline by a smaller proportion under the tariffs & NTMs scenario. Except for processed food, exports of all commodity groups increase more under the tariffs & NTMs scenario than under the tariff-only scenario. This tends to suggest that reducing NTM-related costs in addition to tariff liberalisation could be helpful in boosting exports.

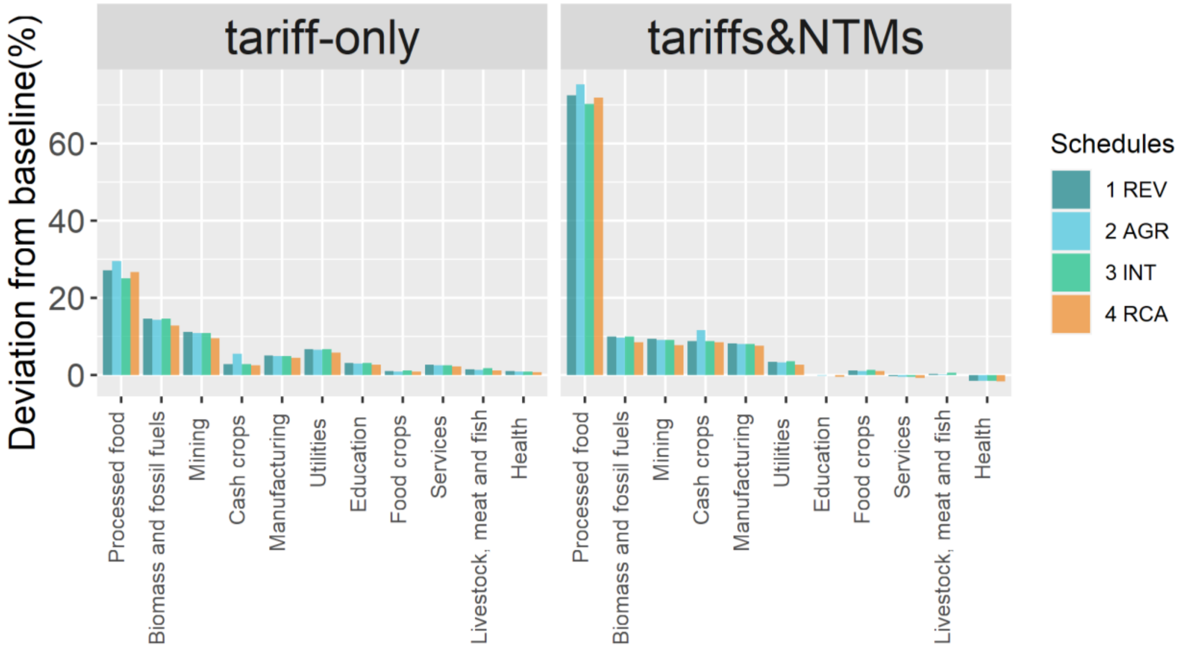
Figure 3. Impacts of the AfCFTA on commodity exports in 2035



Source: DEMETRA results.

In contrast to exports, the effects of the AfCFTA on imports for the various commodity groups are relatively consistent, especially under the tariff-only scenario (Figure 4). Under this scenario, imports of all the commodity groups will increase, albeit in different proportions. The import of processed food shows the largest increase, at 25–29 %. However, the percentage change rises significantly to 70–75 % under the tariffs & NTMs scenario. As expected, the increase in the import of processed food is more prominent under the agricultural trade liberalisation schedule. The imports of cash crops will also increase, by 2–6 % under the tariff-only scenario and by 8–12 % under the tariffs & NTMs scenario, with the largest increase being recorded under the AGR schedule. Imports of food crops, and livestock, meat and fish commodities will also increase. However, while the percentage increase in imports of food crops will increase from about 1 % under the tariff-only scenario to about 1.5 % under the tariffs & NTMs scenario, the change in livestock imports will decline from about 2 % under the tariff-only scenario to less than 1 % under the tariffs & NTMs scenario. This could mean that the additional effect of reducing NTM-related costs on imports may vary from one commodity to another.

Figure 4. Impacts of the AfCFTA on commodity imports in 2035



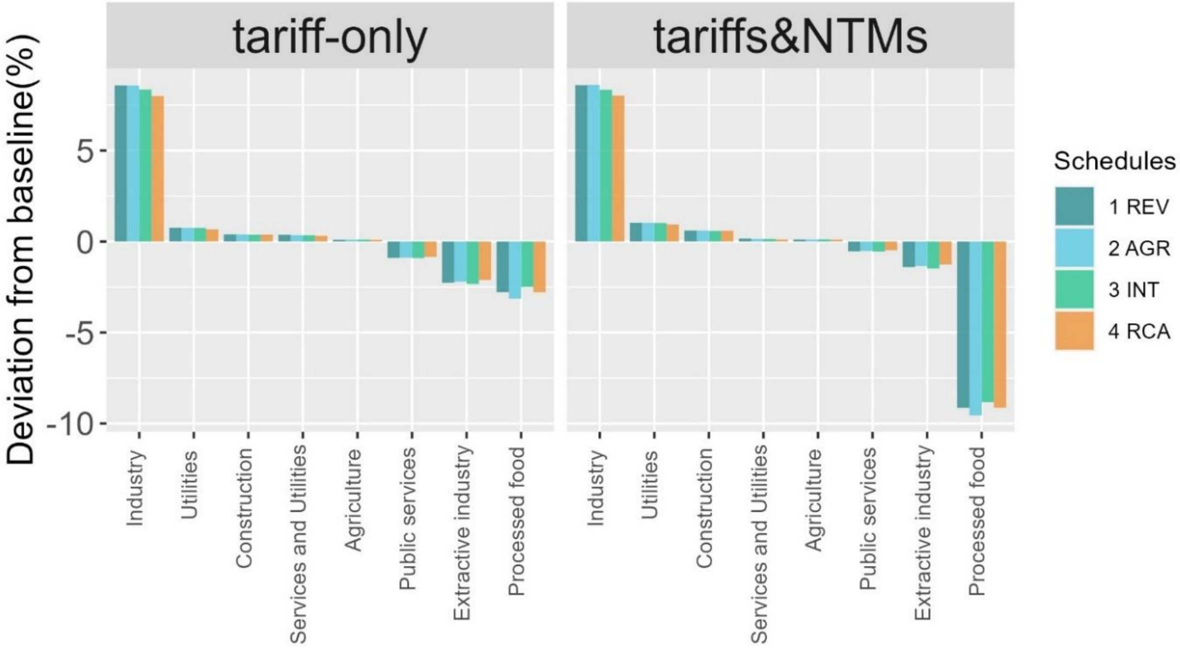
Source: DEMETRA results.

4.2.3. Impacts on sectoral output

The effects of the AfCFTA on sectoral output are mixed, but consistent across tariff-only and tariffs & NTMs scenarios. The industrial sector shows the highest output growth under both scenarios. The output of the sector will increase by 8–8.5 % under the tariff-only scenario, with a very marginal increase under the tariffs & NTMs scenario (Figure 5). Under both scenarios, the REV and the AGR schedules have larger effects. The growth in the output of the sector is driven by the growth of key subsectors such as cement (24–28 %), non-metallic (20.5–23 %), plastic and rubber (21–23 %), and textile, apparel and footwear (12–15 %)

under the tariff-only scenario (see Figure A1 in Annex 1). The growth in these subsectors offset the output decline in basic metal, iron and steel, electrical and electronics, pulp and paper, other manufacturing and wood subsectors.

Figure 5. Impacts of the AfCFTA on sectoral output in 2035



Source: DEMETRA results.

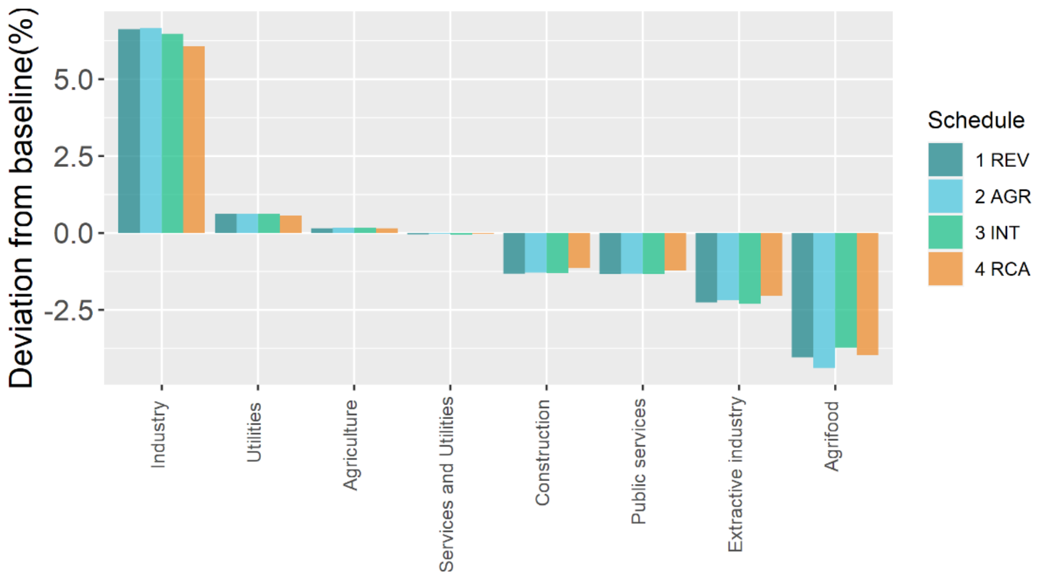
The effect on the output of the agriculture sector is very insignificant, as output growth under both scenarios will be lower than 0.5 %. Regional agricultural activities will grow in all regions except the South West (see Figure A2 in Annex 1). The increase in the output of the agriculture sector across the regions is largely offset by the decline in regional agricultural activities in the South West, resulting in a very small overall effect on the aggregated agriculture sector. Meanwhile, the effect on the processed food sector is negative. The output of the sector will decline by about 2.5–3 % under the tariff-only scenario and by 8.75–9.2 % under the tariffs & NTMs scenario, with the largest negative effect being recorded under the AGR schedule. The reduction in the output of the processed food sector could be linked with the crowding-out effect of the increase in the import of food-related commodities. As imports of food-related commodities increase, albeit at a relatively competitive price, the domestic production and output of the processed food sector will decline.

4.2.4. Impacts on employment

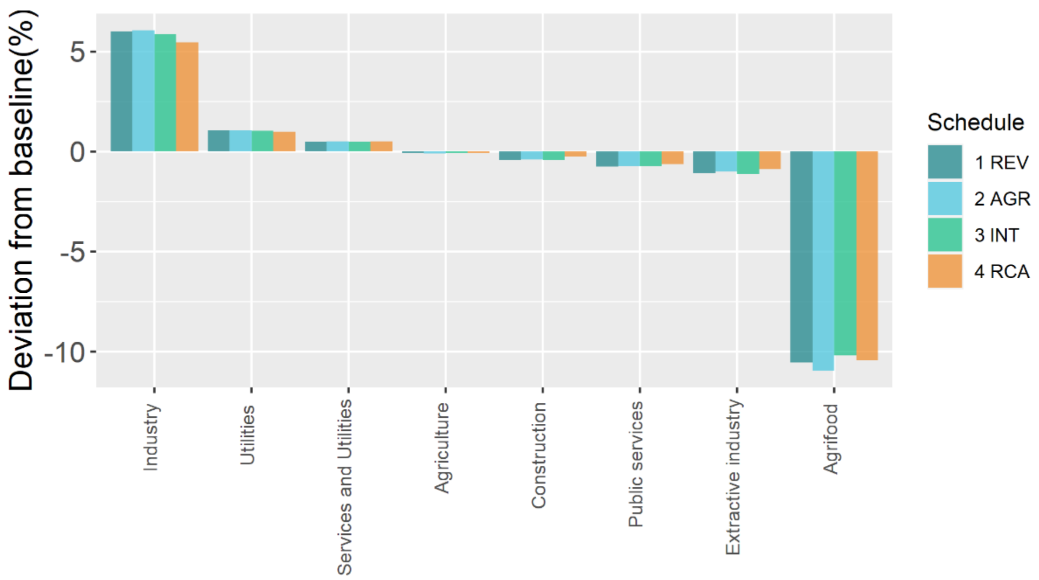
The AfCFTA is expected to affect the labour market in Nigeria because of the reallocation of production factors across sectors and regions. In fact, the potential effect of the AfCFTA on wages and employment was one of the major concerns of Nigeria's labour unions that led to it disapproving the signing and ratification of the agreement. As revealed in Figure 6, the AfCFTA will have an effect on employment in a manner that is largely reflective of the effects on sectoral output. Typically, if the AfCFTA leads to an increase in the output of a sector, it is expected that reallocation of production factors will be reoriented towards that sector. The increase in the output of the industry sector will lead to an increase in the demand for labour almost in the same proportion as the increase in sectoral output.

Figure 6. Impacts of the AfCFTA on employment in 2035 by liberalisation scenario

a) tariff-only



b) tariffs & NTMs

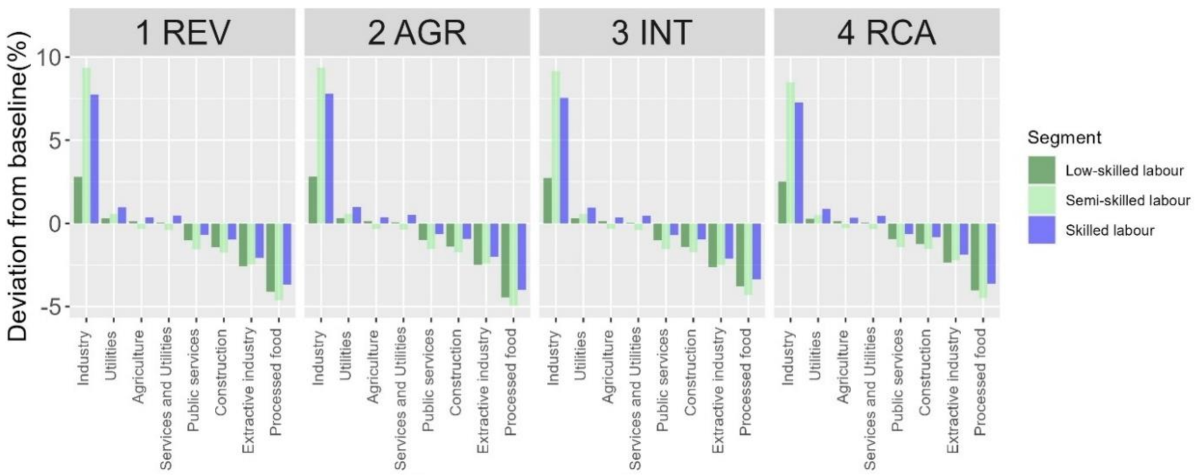


Source: DEMETRA results.

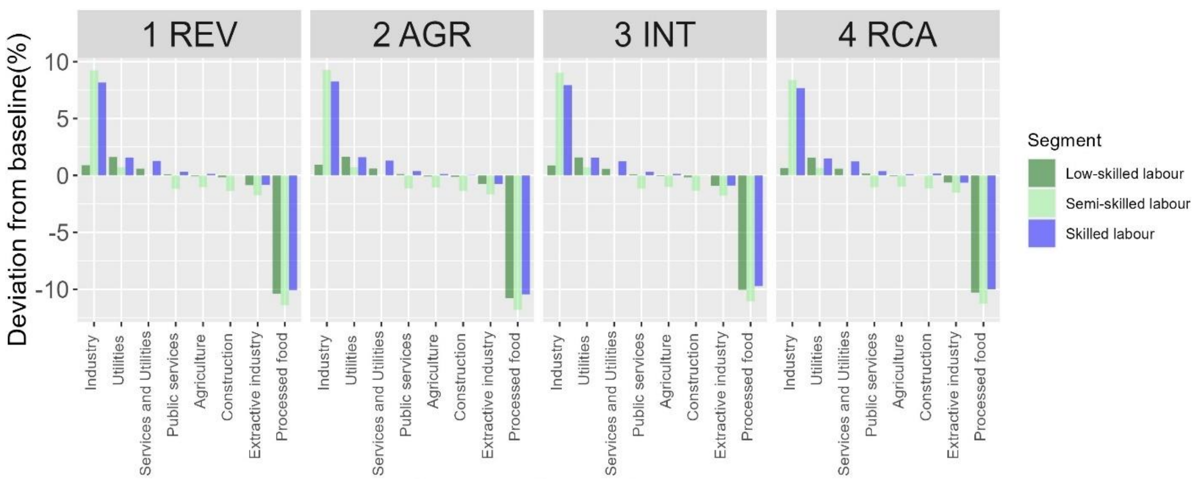
The demand for labour in the industry sector will increase by 6–7 % under the tariff-only scenario, with the AGR schedule having the largest effect. The demand for labour in utilities (0.6–0.625 %), agriculture (0.25 %), and services and utilities (0.13 %) will also increase under the tariff-only scenario. In contrast, the demand for labour will fall in the construction (1.1–1.25 %), public services (1.2–1.25 %), extractive industry (2–2.3 %) and processed food (3.75–4.4 %) sectors. Like the output effect, the fall in the demand for labour is prominent in the processed food sector. It is important to note that, while the output of the construction sector will grow marginally, the demand for labour in the sector will fall, partly due to the reallocation of labour to other sectors. The fall in the demand for labour in the processed food sector is much larger (10–11 %) under the tariffs & NTMs scenario than under the tariff-only scenario, also reflecting the output effect. In addition, the negative effect is largest under the AGR schedule.

Figure 7. Impacts of the AfCFTA on employment, by skill category, in 2035

a) tariff-only



b) tariffs & NTMs



Source: DEMETRA results.

The AfCFTA also has differential effects on labour, based on skills level, that is, the AfCFTA has varied effects on low-skilled, semi-skilled and skilled labour. Under the tariff-only scenario (Figure 7a), in the industrial sector, which has the highest labour demand, semi-skilled labour will see the largest gains under all schedules, followed by skilled and low-skilled labour. The demand for semi-skilled labour in the industrial sector under all schedules will increase by 8–9 %. In the other sectors with labour demand growth, such as utilities, agriculture, and services and utilities, the demand for skilled labour expands. For sectors with declining demand for labour, the decreases in the demand for low-skilled and semi-skilled labour will be more prominent, suggesting that low-skilled workers will be disproportionately affected by the AfCFTA.

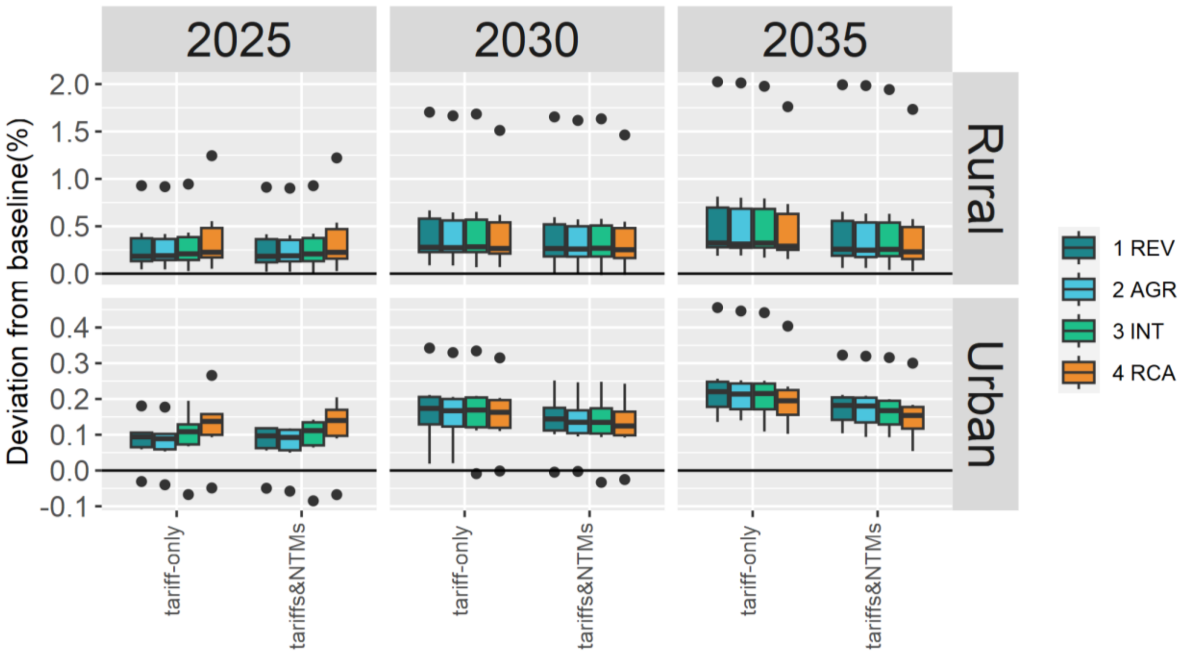
Under the tariffs & NTMs scenario (Figure 7b), the results are similar but the differences between sectors are larger. For example, the growth in the demand for skilled labour in the industrial sector will be much larger than under the tariff-only scenario. In sectors with an overall reduction in demand for labour (including the agriculture and processed food sectors), semi-skilled labour will be disproportionately affected. The negative effect on labour demand seen for the processed food sector under the tariffs & NTMs scenario is more than double the effect seen under the tariff-only scenario.

4.2.5. Household impacts

4.2.5.1. Household welfare impact

The welfare impacts of the AfCFTA for rural and urban households are shown in Figures 8. For rural households, the welfare impacts tend to be positive and expand with time. The pattern of the impacts is similar for both the tariff-only and tariffs & NTMs scenarios.

Figure 8. Impacts of the AfCFTA on household welfare, 2025–2035

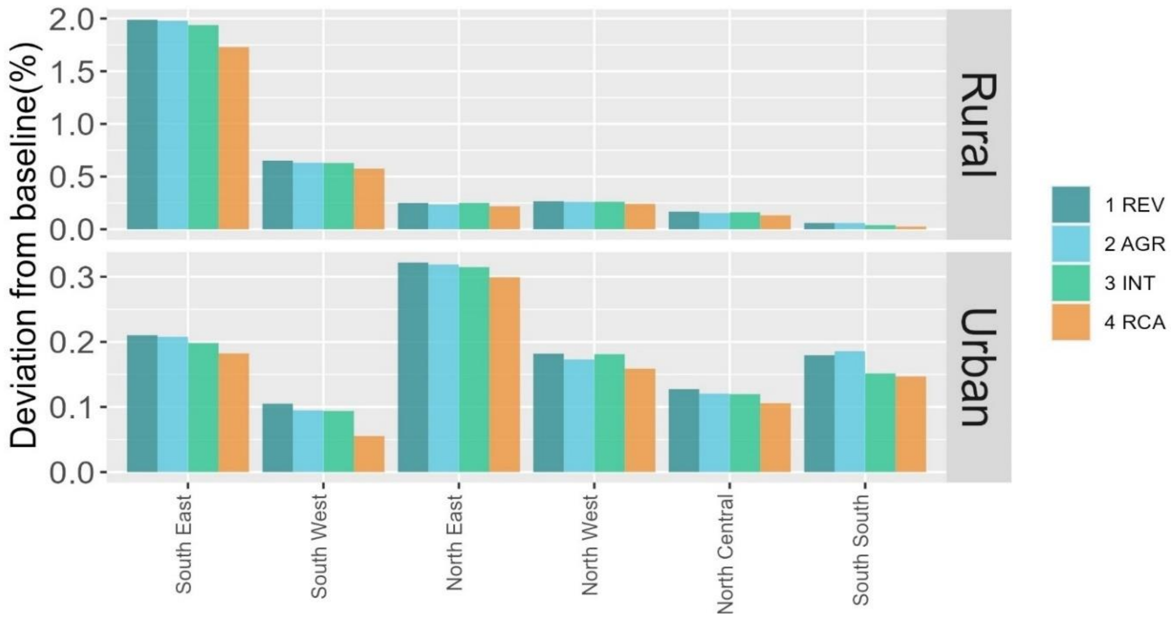


Source: DEMETRA results.

For urban households, the welfare impacts are much more varied. By 2025, some negative welfare impacts are expected as result of the AfCFTA. However, as the implementation of the AfCFTA takes holds, the negative welfare impacts witnessed by 2025 will begin to decline. By 2035, the gains of the AfCFTA would have expanded such that the overall welfare effects become positive. A similar pattern is seen for both the tariff-only and tariffs & NTMs scenarios, although the welfare impacts of the tariff-only scenario are much larger than those of the tariffs & NTMs scenario.

In terms of regional welfare, the AfCFTA is expected to have the largest positive welfare effects on the South East region, followed by the South West and North West regions (Figure 9). For urban households, the welfare effects are expected to be much larger in the North East region, followed by the South East, North West and South South regions. For rural and urban regions, the REV schedule tends to show the largest welfare effects.

Figure 9. Impacts of the AfCFTA on regional household welfare, 2025–2035

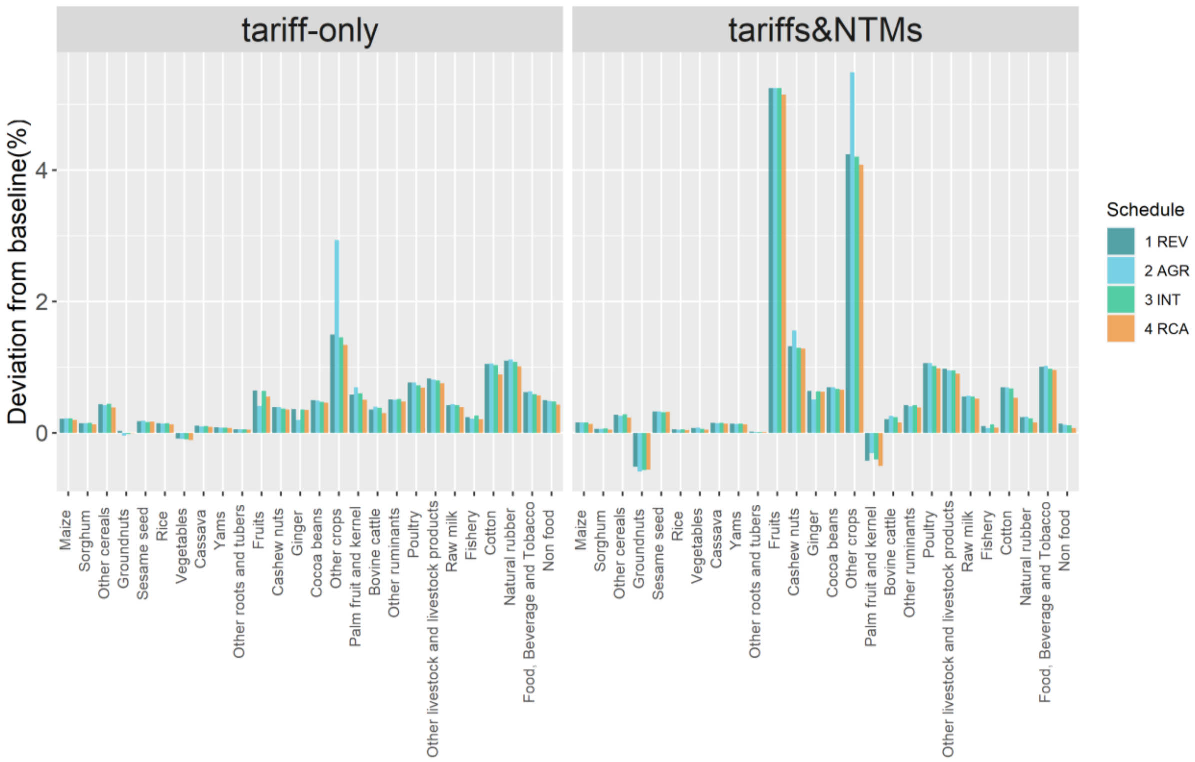


Source: DEMETRA results.

4.2.5.2. Household food demand

The effects of the AfCFTA on the demand for food are mixed (Figure 10). Under the tariff-only scenario, the demand for all food commodities will increase, except for groundnuts and vegetables. This increase in food demand is more pronounced for other crops, natural timber and cotton, with the demand for other crops increasing by almost 2.9 % under the AGR schedule. Demand for staple food items such as rice, maize, yam and cassava will increase by far less. Under the tariffs & NTMs scenario, the demand for all food items will increase, except for groundnuts, and palm fruit and kernel. The demand for other crops under the AGR schedule will increase the most, at about 5.7 %. The demand for fruits will also increase by about 5.3 %.

Figure 10. Impacts of the AfCFTA on household food demand, 2035

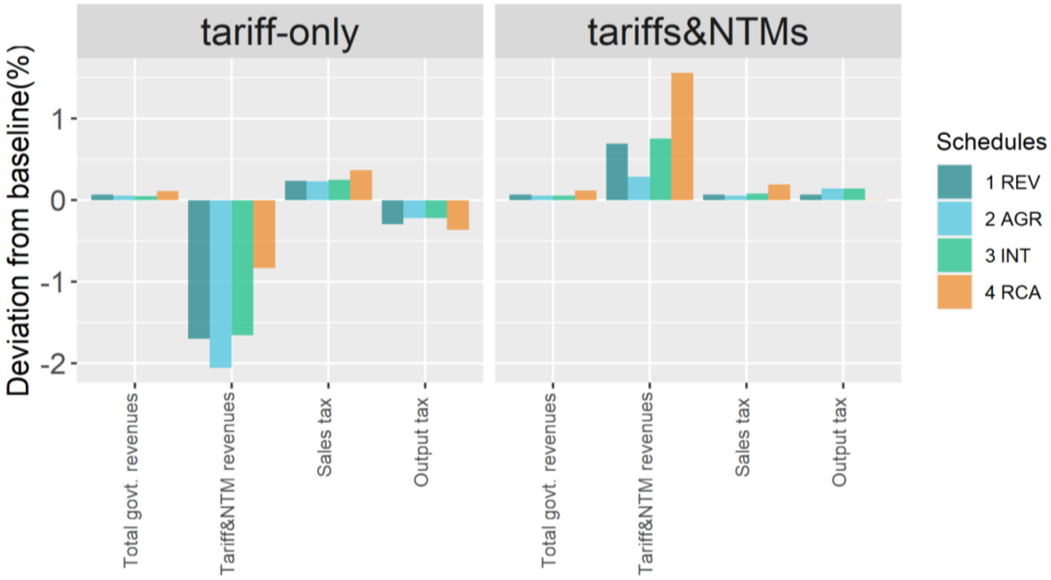


Source: DEMETRA results.

4.2.6. Government revenue

In the short term (2025), tariff revenue falls as expected (see Figure 11). Trade-related revenue falls by 0.9–2.1 % depending on the liberalisation schedule, with the largest fall experienced under the AGR schedule. Output tax also declines by 0.3–0.4 %, owing partly to the fall in the output of some sectors. However, the efficiency gains induced by the AfCFTA increases revenue from sales tax such that it offsets the revenue loss from trade and output taxes.

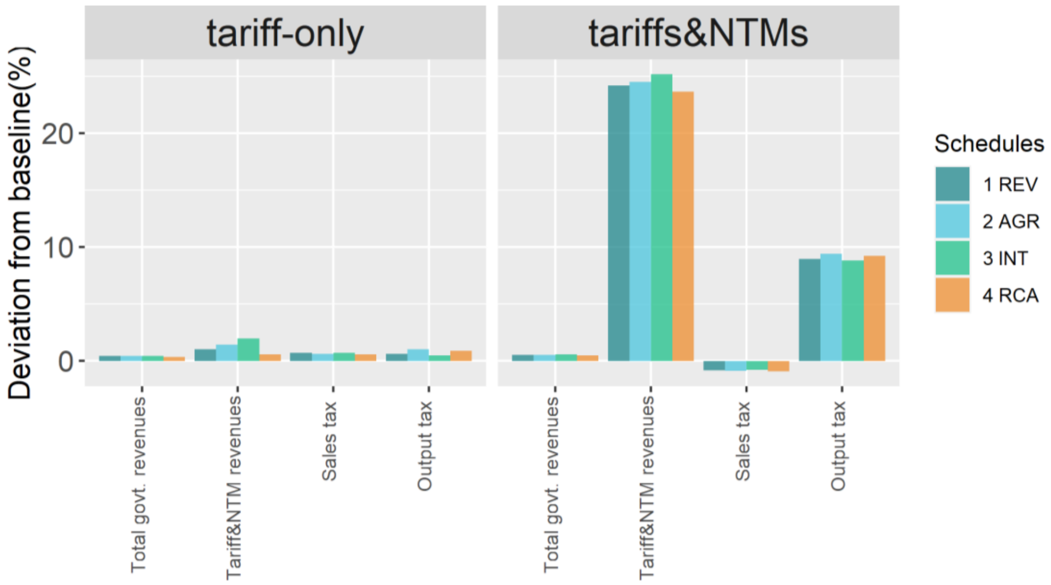
Figure 11. Impacts of the AfCFTA on government revenue sources, 2025



Source: DEMETRA results.

In the transition to 2035, under the tariff-only scenario, tariff and output tax revenues rebound marginally and overall government revenue increases (Figure 1). Under the tariffs & NTMs scenario, the increase in trade and output tax revenues are significant. Trade-related tax revenue increases by about 25 %, while output tax revenue increases by about 10 %. However, sales tax revenue declines by 1 %, which is strong enough to mitigate the significant increase in other tax revenue sources, ultimately resulting in a small increase in overall government revenue, by less than 1 %.

Figure 12. Impacts of the AfCFTA on government revenue sources, 2035



Source: DEMETRA results.

5. Conclusions

This study examines the impacts of the AfCFTA on Nigeria's economy using global and single-country CGE models. Specifically, the study investigates the impact of the AfCFTA on different sectors, economic agents, commodities and indicators of the Nigerian economy. Based on the analysis of the results, the following conclusions can be reached.

The AfCFTA has limited impact on growth (GDP). This suggests that, while the AfCFTA can boost trade and welfare, this will not automatically result in GDP changes. In other words, the AfCFTA may be an essential requirement for growth, but it is not sufficient.

The sectoral effects of the AfCFTA are mixed. While some sectors will experience positive effects, others will be negatively affected. Specifically, the industrial sectors will benefit most in terms of output growth. The output of the agriculture sector will increase marginally, while that of the processed food sector will decline.

Overall, the AfCFTA will lead to a greater increase in imports than in exports, and this has implications for the exchange rate. An increase in imports over exports will trigger exchange-rate depreciation. Changes in imports and exports also reflect changes in sectoral output.

The combination of the decreased output of the domestic processed food sector and the increase in imports of processed food commodities due to lower prices may also have food security implications. Although the shortfall in domestic production will be offset by an increase in imports, over-reliance on food imports can cause food security vulnerabilities.

The employment effects of the AfCFTA also reflect its sectoral effects. The sectors that experience sectoral output growth will also witness an increase in employment, and vice versa. The industry, utilities and agriculture sectors will witness a growth in employment in line with sectoral growth, while construction, public services, extractive industry and processed food sectors will witness a fall in employment.

The AfCFTA also has differential effects on labour, based on skills level, that is, the AfCFTA has varied effects on low-skilled, semi-skilled and skilled labour. Generally, employment opportunities will be fewer for low-skilled labour due to there being relatively fewer opportunities for these workers in expanding sectors. In the industrial sector, which has the highest labour demand, semi-skilled labour will see the largest gains under all liberalisation schedules, followed by skilled and low-skilled labour. In sectors with declining labour demand, low-skilled and semi-skilled labour will be more affected.

The AfCFTA generates overall positive welfare effects. But the welfare effects will vary between rural and urban households and across the six Nigerian regions. The welfare impacts for rural households tend to be positive and expand with time. For urban households, some households will experience a decline in welfare by 2025. However, in transitioning to 2035, and as the benefits of the AfCFTA take hold, these negative welfare effects will become positive. At the regional level among rural households, the South East region will have the largest welfare gains, followed by the South West and North West regions. For urban households, the welfare effects are much larger in the North East region than in other regions, followed by the South East, North West and South South regions.

The overall improvement in welfare may not be unconnected with the increase in the demand for food. Under the tariff-only scenario, the demand for all food commodities will increase, except for groundnuts and vegetables. The increase in demand for staple food items such as rice, maize, yam and cassava will be smaller. Under the tariffs & NTMs scenario, the demand for all food items will increase, except for groundnuts, and palm fruit and kernel.

The AfCFTA will not lead to revenue losses as envisaged. In the short term, tariff revenue and output tax revenue will fall. However, revenue from sales tax will increase such that this will offset the revenue loss from trade and output taxes. In the transition to 2035, tariff and output tax revenues will rebound, and overall government revenue will increase.

Finally, the overall effects of the AfCFTA will vary depending on the liberalisation schedule adopted to achieve specific government objectives. While the effects of the different liberalisation approaches are similar in some cases, the magnitude of the impacts differ.

6. Recommendations

Based on the main findings of this study, the following recommendations are suggested, to maximise the benefits of the AfCFTA while minimising the threats.

- The study has revealed that the AfCFTA is not sufficient to stimulate economic growth. Therefore, the government may implement complementary measures alongside the implementation of the AfCFTA to boost growth and promote economic diversification.
- Policies are needed to boost key sectors and their export capacities. The competitiveness of domestic sectors needs to be enhanced, particularly for those sectors that will be adversely affected by the AfCFTA, such as the processed food sector. Policies to support the competitiveness and export capacity of the sector may include improvements in infrastructure and trade logistics, trade enablers, capacity building and institutional reforms.
- While the AfCFTA may increase food availability and food consumption through cheaper imports, it is important to note and address the potential food security implications and vulnerability created by excessive food imports, especially considering the recent effects of the Russian invasion of Ukraine on domestic food prices and access.
- Due to the potential effects of the AfCFTA on employment and job losses, especially for low-skilled and semi-skilled workers, policies to support these categories of workers are desirable. These could include unemployment support in the short term, and reskilling and building the capacity of these worker, so they can be employed in other growing sectors in the medium to long term.

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List of abbreviations

AfCFTA	African Continental Free trade Area
AGR	Liberalisation based on agricultural trade (schedule)
ASEAN	Association of Southeast Asian Nations
AU	African Union
CES	Constant Elasticity of Substitution
CGE	Computable General Equilibrium models
COMESA	Common Market for Eastern and Southern Africa
CPI	Consumer Price Index
CSEA	Centre for the Study of the Economies of Africa
DEMETRA	Dynamic Equilibrium Model for Economic Development Resources & Agriculture
ECOWAS	Economic Community of West African States
GDP	Gross Domestic Product
GTAP	Global Trade Analysis Project
HS	Harmonised System (tariff nomenclature)
INT	Liberalisation based on intermediate inputs trade (schedule)
MAGNET	Modular Applied General Equilibrium Tool
NESG	Nigeria Economic Summit Group
MAN	Manufacturing Association of Nigeria
MSMEs	Medium, Small and Micro Enterprises
NTMs	Non-Tariff Measures
NBS	National Bureau of Statistics
NLC	Nigeria Labour Congress
RCA	Revealed comparative advantage commodity trade (schedule)
REV	Liberalisation based on revenue maximisation from tariffs (schedule)
ROW	Rest of the World
SACU	Southern African Custom Union
SAM	Social Accounting Matrix

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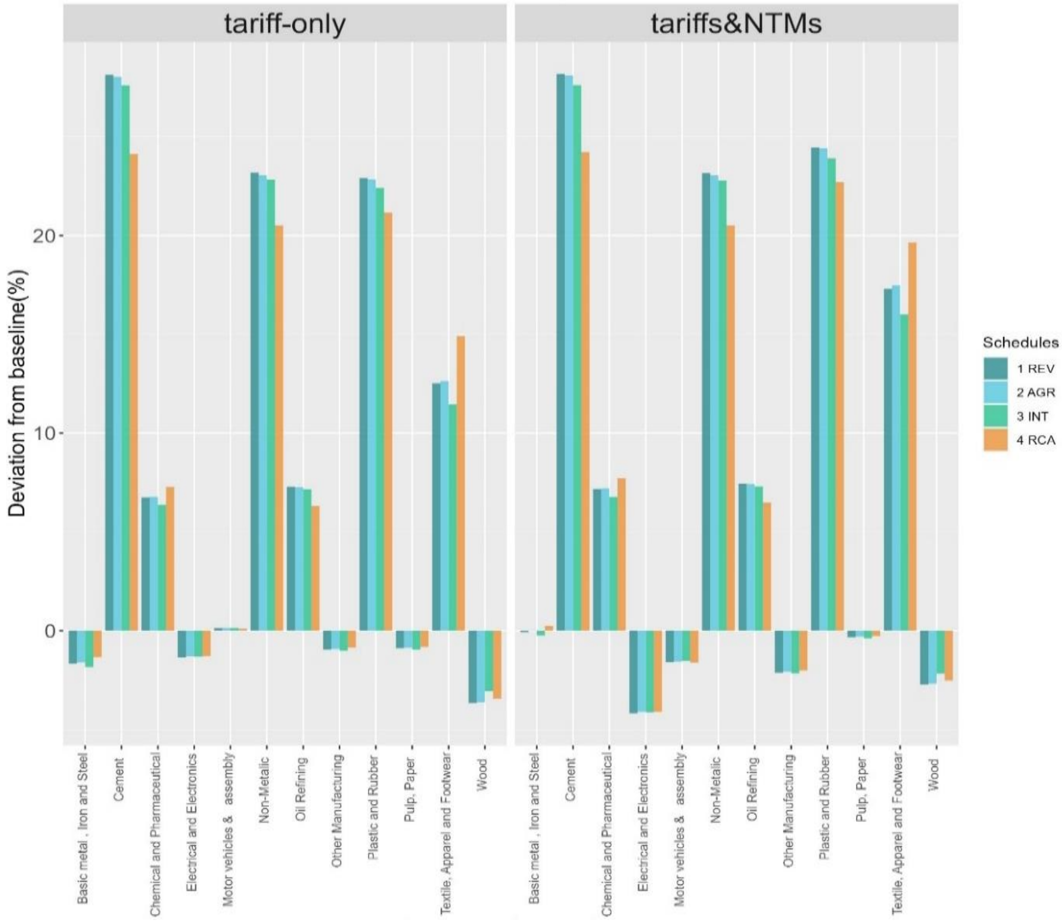
Annexes

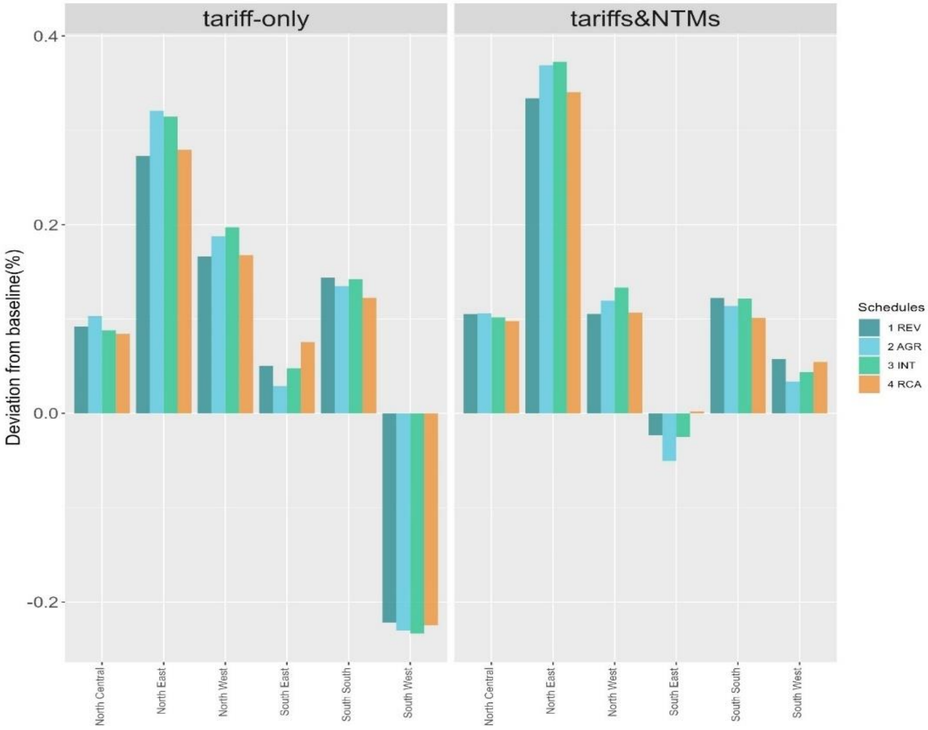
Annex 1. Additional information

Figure A1. Impact on output of industrial subsectors



Source: DEMETRA results

Figure A2. Impact on regional agricultural activities



Source: DEMETRA results

Annex 2. Web infographic with interactive data visualisations

This report is associated with an interactive infographic published on the European Commission's data portal of agro-economic modelling (DataM website). The link and the related QR code can be found below.

https://datam.jrc.ec.europa.eu/datam/mashup/AFCFTA_NIGERIA_DASHBOARD

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