

Impact of the AfCFTA on Nigeria's agri-food sector

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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 are uneven, and it presents opportunities and threats to different sectors of the economy. Hence, this paper assesses the impact of the AfCFTA on the Nigerian economy, particularly focusing on the agri-food sectors. Using DEMETRA model and a 2019 SAM, the paper assesses the impacts of the AfCFTA. The analysis shows that the AfCFTA has a very small impact on GDP, and the impact is much larger under the tariff and NTM scenarios than under the tariff only scenario. Contrary to expectations, government revenue increase significantly as revenue from other sources offset the fall in customs revenue, and this effect is larger under the intermediate input liberalisation schedule. The outputs of industry, utilities, construction, services and agriculture sectors increase while outputs of public services, extractive and processed food sectors reduce. 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 bigger under the agricultural trade liberalisation schedule. The employment effects also mirror the output effect, with sectors that experience output contraction also experiencing fall in employment and vice versa. Low-skilled labour will be mostly affected. The welfare impact is higher for rural households compared to urban households. For urban households, some outlier households face some welfare losses in 2025 and 2030. But the negative welfare effects turn positive in the transition to 2035 as the AfCFTA benefits expand. Based on the findings of the study, it is recommended that complementary policies be implemented to stimulate growth. Policies to protect key sectors that are negatively affected, including processed food sector, be implemented.

1 Introduction

The African Continental Free Trade Area (AfCFTA) came into existence on March 21st, 2018 following the signing of the agreement by the Head of States and Governments of the African Union. The AfCFTA is aimed at boosting intra-African trade and promoting regional integration

and development. The agreement is the largest free trade area in the world in terms of the number of participating countries (World Bank, 2020). A major thrust of the AfCFTA is the removal of tariffs from about 90% of goods under the Harmonised System tariff lines within five years, and 7% within ten 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 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 the benefits and costs of the AfCFTA are uneven (World Bank, 2020), creating concerns among policy makers in different African countries. These concerns, particularly, delayed the signing of the AfCFTA by Nigeria. Nigeria is the largest economy and the most populous country in Africa. Her GDP of US\$ 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 (real GDP fell by -1.62%) and more recently during the COVID-19 pandemic induced global economic crisis (real GDP fell by -1.79% in 2020). But has since rebounded by reverting to a positive growth of 3.40% in 2021. Still, GDP per capita as at 2021 (\$2,065.75) is yet to recover to the 2016 level of \$2,144.78 and remain below the GDP per capita of contemporary countries like South Africa (\$7,055.04) and Ghana (\$2,363.30). The economy, although largely oil and gas-based, has been fairly diversified in recent years. The service sector is the largest contributor to GDP, accounting for 53% in 2021, followed by the agriculture sector, which contributes 26%. Mining/crude petroleum and natural gas accounted for about 7.31% in 2021, down from 8.39% in 2016. Within the agriculture sector, crop production accounts for 90% while livestock, forestry and fishing contributes 7%, 1%, and 2% respectively.

Trade plays a major role in the economy, and import tax accounts for 9.3% of government revenue as at 2019. Imports and exports accounted for 11.84% and 10.74% of the GDP respectively in 2019. Mining (mainly crude petroleum and natural gas) was the largest export commodities in 2019, accounting for 80.3% of total exports while manufacturing, services and agriculture contribute 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.

The evolution of trade on key import and export commodities between 2018 and 2022 is presented in Table 1. The data shows that mineral products import has the largest share of total

imports between the periods. Its proportion in total imports increased from 20.16% in 2018 to 40.06% in 2022. Boiler, machinery and appliances products and vehicle, aircraft and vessels products also contribute to imports, averaging 21.51% and 10.57% respectively. Other products that contribute to imports include chemical products, base metals products, plastic and rubber products, processed foods, beverages and tobacco products, and livestock and animal products. Exports are more concentrated. Mineral products (mainly crude oil and natural gas) are the major export commodities in Nigeria, averaging about 90% between 2018 and 2022. Another key product accounting for at least 1% of total exports is vehicles, aircraft and vessels, which average about 4%. All the other products individually account for less than 1% of total exports.

Table 1: Commodities imports and exports as a share of total imports and exports, Nigeria (%), 2018-2022

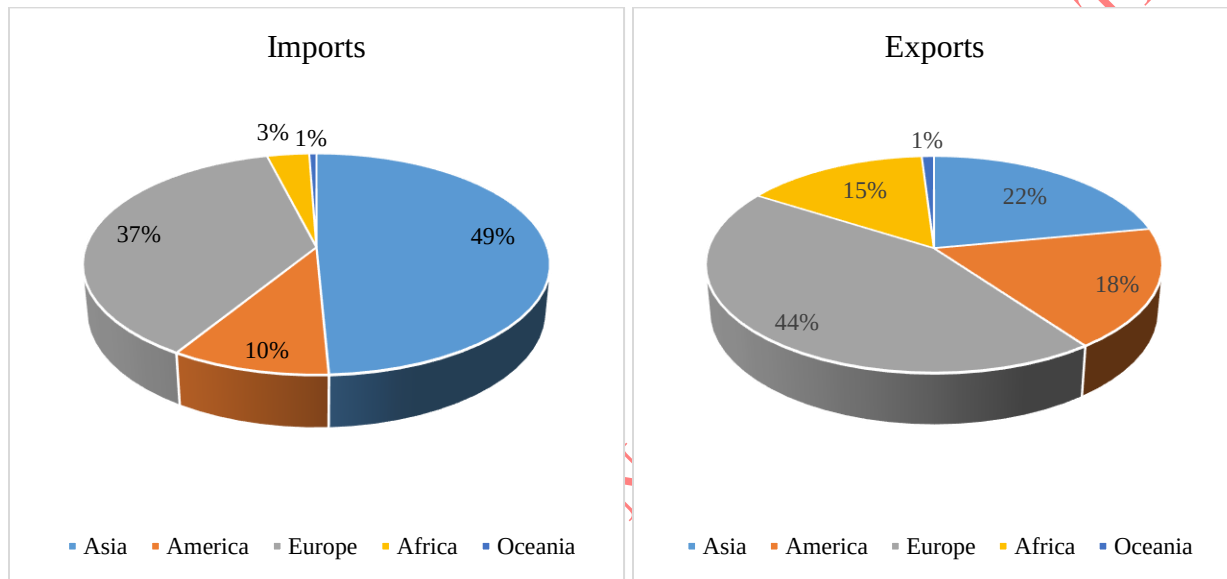
	Imports as a % of total imports					Exports as a % of total exports				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
Livestock and animal products	2.77	2.49	3.58	2.64	2.15	0.11	0.08	0.12	0.12	0.09
Vegetables	4	3.45	5.9	6.48	5.13	0.95	0.81	1.52	1.37	1.18
Processed foods, beverages & tobacco	4.02	3.99	4.68	4.33	3.82	0.97	0.91	1.35	1.83	1.51
Mineral products	20.16	16.03	23.35	31.49	40.06	94.13	87.17	88.81	89.43	91.02
Chemical and allied products	7.53	8.18	11.47	8.63	8.66	0.41	0.35	0.63	2.15	3.15
Plastic and rubber	4.61	4.1	4.8	5.57	4.64	0.22	0.16	0.08	0.24	0.2
Paper and paper products	1.63	2.9	1.49	1.58	1.61	0.01	0.01	0.01	0.01	0.01
Textile and textile products	1.28	1.3	1.44	1.34	1.43	0.02	0.02	0.05	0.07	0.04
Base metal and products	4.87	4.63	5.29	5.09	3.33	0.32	4.2	0.28	0.81	0.91
Boiler, machineries and appliances, parts	19.82	26.78	23.85	20.13	16.95	0.05	0.02	0.14	0.1	0.03
Vehicle, aircraft and vessels	15.88	13.87	9.05	7.46	6.57	2.51	6.06	6.72	3.46	1.36
Optical, photographic, cinematographic, etc. appliances	1.53	7.13	2.08	2.14	2.04	0	0	0.02	0.01	0

Source: NBS (2023)

Although Nigeria is a major economic player in the continent, less than 10% of its trade between 2012 and 2018 is with other African countries (Oyelami, 2021). Imports from African countries account for only about 3% of total imports in 2017, of which South Africa alone accounts for almost 50%. Exports to African countries account for only about 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 Cote d'Ivoire (the largest trading partner in the ECOWAS bloc), etc. Available data (Figure 1) on imports and exports between

Nigeria and the rest of the world shows that 49% of Nigeria's imports come from Asia, 37% from Europe, 10% from America, 3% from Africa, and 1% from Oceania. Imports from countries within the Economic Community of West African States (ECOWAS) account for 1.03% of total imports. In terms of exports, Europe is the largest destination of Nigeria's products, accounting for 44% of total exports. This is followed by Asia with 22.47%, America with 18.0%, and Africa with 14.81%.

Figure 1: Nigeria's imports and exports by regions (%), Q4-2022



Source: NBS (2023)

Despite being the largest economy in the continent, Nigeria was reluctant to sign the AfCFTA agreement until July 9th, 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 have concerns about the potential effects of the AfCFTA on their economic interests. 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 \$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 and environmental effects of the AfCFTA in Nigeria. The specific research objectives include to: (i) examine the macroeconomic effects of the AfCFTA in Nigeria; (ii) analyse the structural effects of the AfCFTA, with special reference to the agri-food sectors; (iii) evaluate the effects on household

welfare and food security; and (iv) investigate the environmental effects of the AfCFTA via changes in CO₂ emissions.

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. Several of the existing literature are continent-wide analysis that focus on the aggregate African effects of the AfCFTA (Saygili, et al., 2018; AfDB, 2019; Abrego, et al., 2019; World Bank, 2020; Wanyonyi and Chemnyongoi, 2020). Abrego, et al. (2019) use a Computable General Equilibrium (CGE) model to simulate the welfare gains from the AfCFTA for 45 countries in the continent. The results show a significant potential welfare gains in Africa. Wanyonyi and Chemnyongoi (2020) analyse the economic effects of the AfCFTA with specific emphasis on tariff removal in the 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 AfCFTA by tariff removal would lead to a rise in COMESA exports and imports and a fall in import prices within the region. The tariff removal would lead to an overall gain in welfare among the African countries but marginally lower the welfare of COMESA region.

Some studies have gone further to analyse the impact of the AfCFTA on agri-food systems (Simola, et al., 2021; Fusacchia, 2022). Simola, et al. (2021) examined the impacts of AfCFTA on food systems and food security in Africa. The study employs a global, multiregional model to determine the trade creation and diversion effects. The findings of the study shows that AfCFTA will contribute positively to economic growth through higher value added production and trade diversification. The study predicts that AfCFTA is expected to 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, oilseeds, dairy products and beef cattle production. However, 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: dairy production will increase significantly, imports will grow by 50%, GDP gains from the AfCFTA will be negligible compared to other African countries, and tariff revenue losses will be substantial.

Bentum-Ennin, et al. (2022) investigated the potential benefits of AfCFTA to the food and beverage sector in Africa. Using simulations to analyze the real benefits of the sector within the context of environmental and import costs, the study show that AfCFTA would benefit the food and beverages sector in terms of reduction in import costs and prices. While these studies provide an assessment of the AfCFTA at the continent-level and in full knowledge of the potential uneven impacts across countries, it is necessary to have country-specific analysis to guide individual country implementation.

Given its status as the largest economy in Africa, Nigeria is poised to play a major role in the AfCFTA. Meanwhile, the initial opposition to the AfCFTA in the country makes it important to conduct an empirical analysis of the economic impacts. Hence, several studies have attempted to assess the AfCFTA in the context of the Nigerian economy. While some studies like Omoju and Ikhide (2020) examine the potentials and challenges of the Nigerian economy in harnessing the benefits of the AfCFTA, others have empirically investigated its potential economic impacts (NESG, 2019a; Chukwu, et al., 2022; Oyelami, 2022). NESG (2019a) 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. The study used a single-country computable general equilibrium (CGE) model and a 2014 Social Accounting Matrix (SAM). Six policy scenarios were simulated: linear tariff cut over the 10-year period of AfCFTA implementation; front-loading tariff liberalisation; back-loading tariff liberalisation; linear tariff cut in combination with protection of 10% of locally produced substitutes categorised as sensitive goods; linear tariff cut in combination with 10% increase in government investment; and linear tariff cut in combination with 5% increase in foreign capital inflow and labour supply. The study found that the implementation of the AfCFTA has a negative impact on Nigeria's GDP. Government revenue declines by 0.13-0.21% depending on the scenarios. The AfCFTA also marginally increases exports by 0.02% while increase in imports from African countries is 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 liberalization, which does not include the responses from other trade partners. Also, the 2014 SAM used in the study is based on 2010 supply and use table. The SAM no longer reflect the current structure of the economy as several structural changes have occurred in the economy,

such as the expanding role of the service sector, shrinking contribution of the oil and gas sector, and changes in the tax system.

In another similar study, NESG (2019b) also used a CGE model to assess the impacts of the AfCFTA on Nigeria's industrial sectors. The study found that the AfCFTA has small negative impacts on the industrial sector. The analysis further showed that the AfCFTA has positive effects on the imports and exports of the industrial sector while having negative effects on investment, output and employment. NESG (2019c) similarly investigated the effects of the AfCFTA on Nigerian agricultural sector using a CGE model. The study finds that the AfCFTA has a negative effect on the agriculture sector as shown in a marginal decline in agriculture production. The AfCFTA also makes imported agricultural commodities to be cheaper, thereby disincentivising 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 (SMART) model. Contrary to the findings of NESG (2019a), this study shows that the AfCFTA has a positive impact on the Nigerian economy, especially in the areas of trade and welfare. Specifically, it found that it has positive total trade and welfare effects of \$145 million and \$13 million respectively while creating a revenue loss of \$104 million, largely due to tariff removal. There are trade-creating effects in the petrochemical, textile and maritime products sectors and trade-diverting effects in 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.), fertilizer, propylene, and other polymers, odoriferous substances and mixtures, reception apparatus for television, and coal. However, the partial equilibrium modeling used in the study fails 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 focuses on trade and did not capture the revenue effects from non-trade sources such as income, indirect taxes and firms. CSEA (2020) also analysed the macroeconomic, welfare and MSMEs effects of the AfCFTA. For the macroeconomic effects, the study utilised a static global CGE model and found that there is a modest positive welfare effects compared to other African countries. In terms of trade effects, the AfCFTA results in an increase in exports of food, agriculture commodities, machinery and electrical products while exports of wood and

paper commodities decline. Imports from Ghana, Burundi, Botswana, China, Canada and Namibia fall while imports from Ethiopia, Italy, Japan, Zimbabwe doubled.

Mhonyera, et al. (2023) examine the welfare and trade effects of the AfCFTA for South African and Nigeria using decision support model (DSM) and the Global Trade Analysis Project (GTAP) computable general equilibrium (CGE) model. The results show that the AfCFTA has positive welfare gains for Nigeria and South Africa. Chukwu et al, (2022) estimated the effects of AfCFTA on trade, revenue, and welfare in Nigeria. The study applied the World Integrated Trade Solution/Software for Market Analysis and Restrictions on Trade (WITS-SMART) anchored on a partial equilibrium model. The results of the study show that AfCFTA will have a favorable welfare gain of about US\$740.571 million, but Nigeria will sustain losses in trade revenue valued at US\$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 with 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, and ultimately food security. In addition, much attention has not been paid to the environmental effects of the AfCFTA. The AfCFTA is expected to enhance structural transformation in the continent, partly because intra-African exports are largely manufacturing commodities compared to Africa's exports to the rest of the world, which are basically unprocessed primary commodities and solid minerals (IMF, 2019). Hence, the expected changes in resource allocation within the continent and the structural transformation that will be induced by the AfCFTA may influence the continent's environmental goals. To the best of our knowledge, only Bengoa, et al. (2021) have attempted to examine the environmental effects of the AfCFTA. But the study uses a multi-region/country CGE model. There is no known study that has empirically examined the environmental effects of the AfCFTA for an individual countries. These are the gaps that this study aims to fill.

3 Modelling the economy-wide effects of the AfCFTA for Nigeria

3.1 Method and data

This study uses the DEMETRA model developed by the Joint Research Centre of the European Commission. The DEMETRA is a single country dynamic CGE model. The model, like most other CGE models, is based on neo-classical economic theory, with producers aiming to maximise output at minimal cost while consumers aim to maximise utility. The model can allow for different sectors and economic agents. Hence, it is possible to have results based on aggregate, sectoral and economic agent units. The model also assumes perfect competition. Individual processes of economic activities are captured by a constant elasticity of substitution (CES) function. Output is either sold domestically or exported, and this behaviour is depicted by a CES function. The Armington hypothesis also holds in that imported and domestic alternatives of a commodity are imperfect substitutes. A unique feature of the model is that it incorporates home production. That is, marketed and subsistence commodities are separated.

CGE models are calibrated on Social Accounting Matrices (SAM). A SAM describes the interrelations among economic agents, sectors and factors of production. The most widely used SAM for Nigeria was published in 2010 based on 2006 national accounts (Nwafor, et al., 2010). The SAM contains all the different modules usually presented in this accounting scheme, including activities, commodities, income and expenditure of economic agents, production factors, taxes, etc. It contains 61 sectors and 62 commodities, including 39 disaggregated agriculture sectors. Recent studies that have used the SAM, such as Omoju, et al. (2020), and Ikhiede, et al., (2021) have updated it with 2013 and 2016 national accounts data respectively using the cross-entropy method (Lemelin, Fofana and Cockburn, 2013). A new 2019 SAM will be built for the analysis in line with the DEMETRA framework relying on the 2019 Input-Output table, the integrated economic accounts derived from the United Nations Statistics Division database, Balance of Payments extracted from the IMF Data Warehouse, National Statistical Abstracts/Bulletins and other sources.

For the environmental aspect, we integrate an environmental module in the CGE model that links the output of each sector to the emission intensity of the sector. This way, we are able to obtain the changes in emissions as a result of changes in sectoral output. The emissions data in the GTAP-E database is used in this respect. Furthermore, available data on parameters and elasticities may be obtained from the literature, including from Oyelami (2021) and Fusacchia, Balie and Salvatici (2022). The latter contains the Armington elasticities for almost all agriculture commodities.

3.2 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 reduction in government revenue through reduction in custom duties (Oyelami, 2021). Given the limited fiscal space, it is envisaged that the government will respond to this revenue shortfall. Hence, maximizing government revenue within the framework of the AfCFTA implementation is a key policy scenario.

Also while the government is keen to ensure food security through improved access to food at lower prices, there are also efforts to enhance the efficiency and competitiveness of the local agricultural sector. In this respect, the government has initiated major policies such as the National Food Security Program (NFSP) and the Anchors Borrowers Programme with the aim of boosting the sector. With the expected competition that the AfCFTA will bring, the government will likely boost public investment in the agriculture sector. Among others, the specific intervention through the NFSP include improved public spending on agricultural research and development, seed capital grant, market information system, subsidy framework, guaranteed minimum price on selected commodities, and dams and irrigation infrastructure. These public spending is expected to amount to at least 10% of the annual budget of the Federal and State governments. It is also a consideration that the agri-food sectors may be part of the expected “sensitive” commodities, which are not fully liberalised. These will be key considerations for the government in the implementation of the AfCFTA.

Moreover, the simulations include both tariff liberalisation and non-tariff measure liberalisation. Based on the policy options, the scenarios are summarised below;

A: AfCFTA scenario: Full liberalisation of 90% of commodities, partial liberalisation of 7% of commodities, and exemption of 3% “sensitive” commodities

B: AfCFTA_Revenue scenario: AfCFTA scenario plus a 2.5% points increase in the value-added tax (VAT)

C: AfCFTA_AGRIC scenario: AfCFTA scenario + 10% increase in public investment in agriculture

These scenarios are carried out for both the tariff liberation and the tariff liberalisation plus NTMs liberalisation schedule. The scenario C is derived from the National Food Security

Programme. The details of the shocks to be implemented are to be determined in the next phase of the project/contract.

4 Results

This section presents the results of the simulations based on the MAGNET and the DEMETRA models. The MAGNET shows the effect of the AfCFTA on trade flows with the rest of the world, while the DEMETRA model reveals the effect of the domestic economy, including core economic indicators. The results are presented in a comparison form across the two liberalisation scenarios (tariff only and tariff plus non-tariff measures). The results of these two scenarios are presented for the four liberalisation schedules.

4.1 Effect of the AfCFTA on Nigeria-ROW trade flows

4.2 Economic effect of the AfCFTA

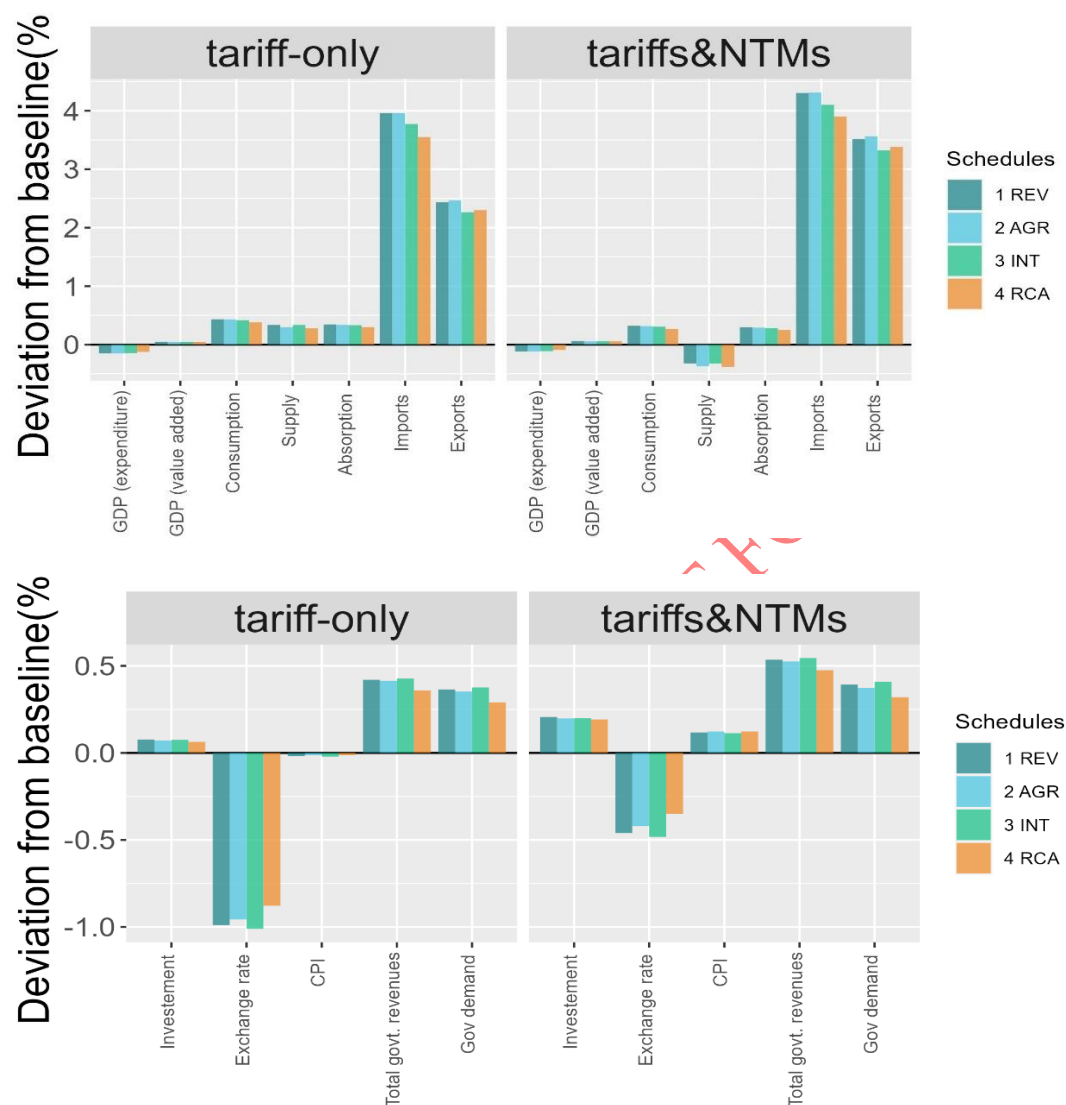
4.2.1 Macroeconomic impact

The overall GDP effect of the AfCFTA is mixed depending on the method of GDP calculation. Using GDP by expenditure, GDP falls by 0.1-0.2%, with the tariff revenue liberalisation schedule having the largest negative effect. The negative effect on GDP (by expenditure) is more pronounced under the tariff scenario than the tariff and NTM scenario. In contrast, when GDP by value-added is considered, the AfCFTA has a moderate positive effect. GDP by value-added increases by 0.05% under the tariff only scenario and 0.07% under the tariff and NTMs scenarios. The results suggest that depending on the measure used, the GDP effect is relatively better under the tariff and NTMs scenario than under the tariff only scenario.

The AfCFTA also leads to increase in consumption by 0.3-0.4% under the tariff only scenario, but the effect is smaller (0.25-0.3%) under the tariff and NTMs scenario. Under both scenarios, the tariff revenue maximization liberalisation schedule has a higher consumption effect while the revealed comparative advantage has the lowest effect. Imports and exports grow under both scenarios and in all the liberalisation schedules, with imports growing much higher than exports. Under the tariff only scenario, aggregate imports grow by 3.5-3.9%, but the effect increased to 3.8-4.3% under the tariff and NTMs scenarios. The effect on imports is relatively higher under the tariff revenue maximization and agricultural trade liberalization schedules. Exports also increase under both scenarios, but not as much as imports. Exports increase by 2.2-2.4% under

the tariff only scenarios, and by 3.3-3.6% under the tariff and NTMs scenarios, with the agricultural trade liberalisation schedule having the largest effect.

Figure XX: Aggregated macroeconomic impacts of the AfCFTA in 2035



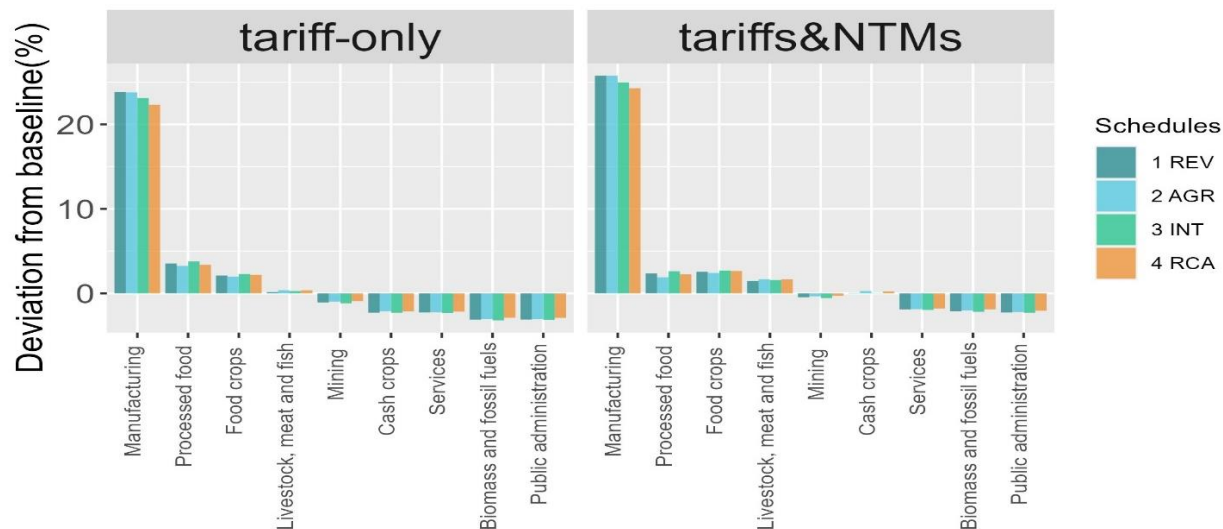
Source:

The AfCFTA also has a positive effect on investment. Investment increases by 0.1% under the tariff only scenario and by 0.3-0.4% under the tariffs and NTMs scenario. The increase in imports relative to exports makes the exchange rate fall. The exchange rate falls by 0.87-1% under the tariff only scenario, and by 0.35-0.49% under the tariff and NTMs scenario. The smaller effect on exchange rate under the tariff and NTMs scenario may not be uncorrelated with the fact that addressing NTMs can also enhance exports, which then reduces the imports-exports

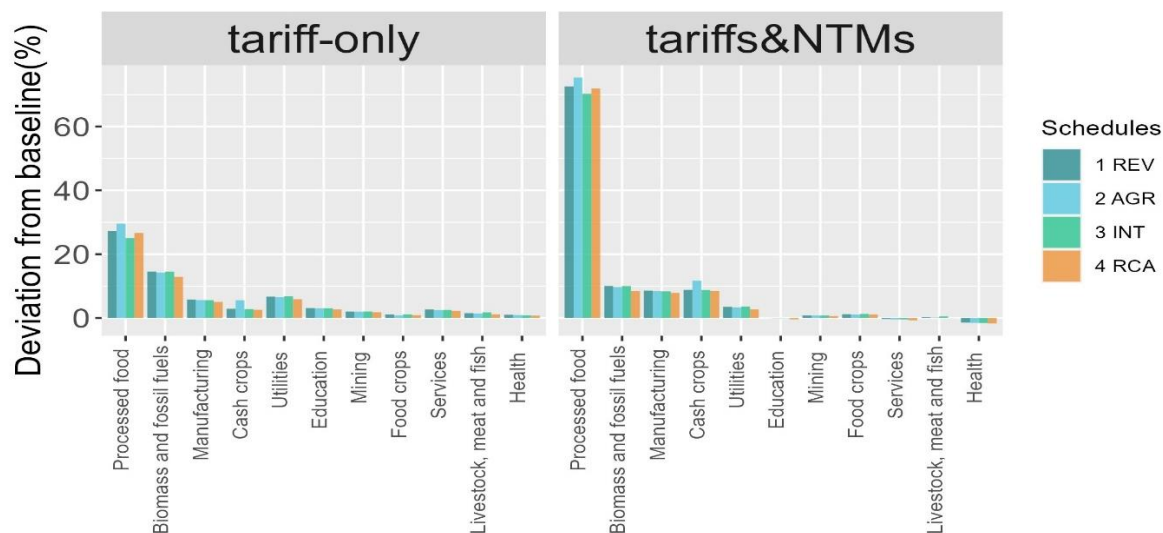
gap. Under both scenarios, the intermediate input liberalisation schedule has the largest effect. The interaction of the effects on supply and absorption results in the change in CPI. Under the tariff only scenario, the CPI reduces by about 0.02%, and increases by 0.11-0.12% under the tariff and NTMs scenario. Total government revenue and government demand increase under both scenarios and in all liberalisation schedules. Government revenues increase by 0.35-0.45% under the tariff only scenario and by 0.49-0.51% under the tariff and NTMs scenario. The intermediate input liberalisation schedule yields the largest effects.

4.2.2 Trade impact

The impact of the AfCFTA on exports of the main commodity groups is mixed. While some commodities record a significant increase in exports, others witness a drop in exports. Based on the results in Figure XX, there are increases in the exports of manufacturing, processed foods, food crops, and livestock/meat/fish in both the tariff only and tariff and NTMs scenarios and across all liberalisation schedules. In contrast, the exports of mining, cash crops, services, biomass and fossil fuels, and public administration fall. Specifically, the exports of manufacturing commodities increase by 22-24% under the tariff only scenario, and by 24-26% under the tariff and NTMs scenario. The largest effect is recorded under the revenue maximization and agricultural trade liberalisation schedules. Exports of processed food also increase by 3.5-4% under the tariff only scenario, and by 2-2.5% under the tariff and NTMs scenario, with the largest effect witnessed under the intermediate inputs schedule. Exports of food crops, and livestock, meat and fish also increase, with the increase being pronounced under the tariff and NTMs scenarios. Exports of food crops increase by 2-2.5% under the tariff only scenario, and by 2.5-2.7% under the tariff and NTMs scenario while exports of livestock, meat, and fish increase by 0.5% and 2% under both scenarios. For commodities like mining, cash crops, services, biomass and fossil fuel, and public administration whose exports decline under the tariff only scenario, their exports either increase or decline by a smaller proportion under the tariff and NTMs scenarios. Except for processed food, exports of commodities increase under the tariff and NTMs scenario than under the tariff only scenario. This tends to suggest that liberalizing NTMs in addition to tariff can be helpful in boosting exports.

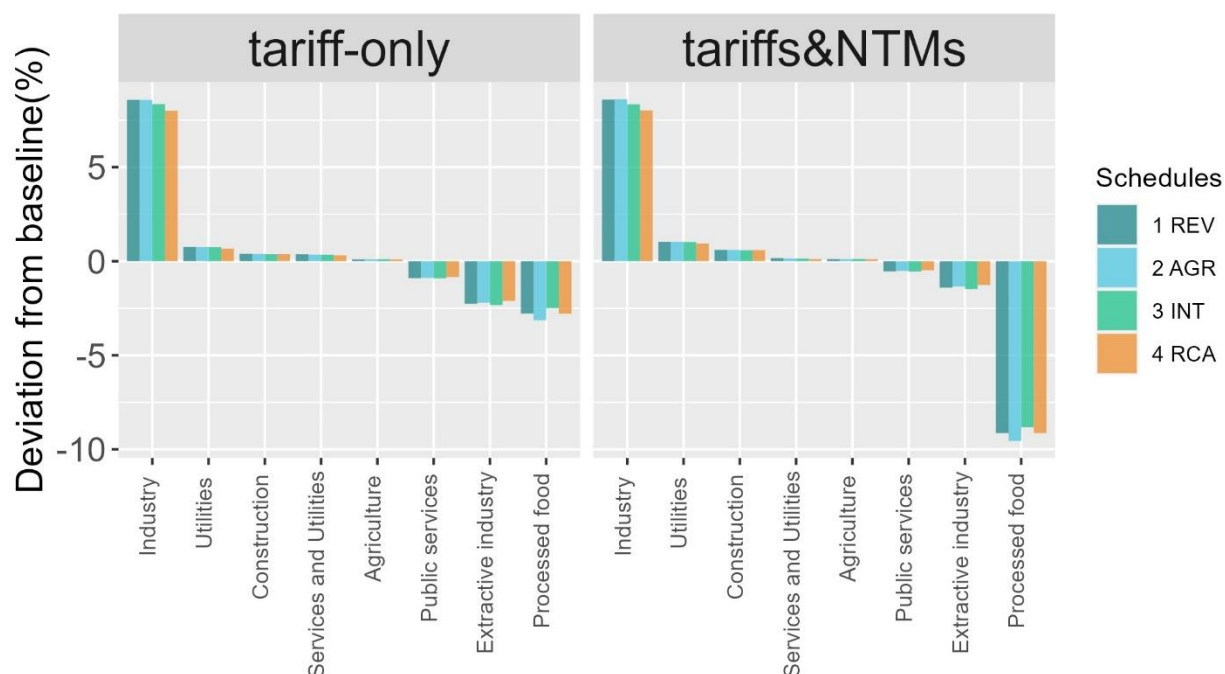


In contrast with exports, the effects of the AfCFTA on imports of commodity groups is relatively consistent, especially under the tariff only scenario. Under this scenario, the imports of all the commodity groups increase, albeit in a different proportion. The import of processed food has the largest increase at 25-29%. However, the percentage change rose significantly to 70-75% under the tariff and NTMs scenario. Expectedly, the increase in the imports of processed food is more prominent under the agricultural trade liberalisation schedule. The imports of cash crops also increase by 2-6% under the tariff only scenario, and by 8-12% under the tariff and NTMs scenario, with the largest increase recorded under the agricultural trade liberalisation schedule. Food crops and livestock, meat and fish commodities also witness increase in imports. However, while the percentage increase in the imports of food crops increase from about 1% under to tariff only scenario to about 1.5% under the tariff and NTMs scenario; the change in livestock imports decline from about 2% under the tariff only scenario to less than 1% under the tariff and NTMs scenario. This could mean that the additional effect of NTM liberalisation on imports may vary from one commodity to another.



4.2.3 Sectoral impacts

The effects of the AfCFTA on sectoral output are mixed and consistent across tariff only and tariff and NTMs scenarios. The industrial sector experiences the highest output growth under both the tariff only and tariff and NTMs scenarios. The output of the sector increases by 8-8.5% under the tariff only scenario, with a very marginal increase under the tariff and NTMs scenario. Under both scenarios, the tariff revenue maximization and the agricultural trade liberalisation schedules have larger effects. The growth in the output of the sector is inspired by the growth of key sub-sectors such as cement (24-28%), non-metallic (20.5-23%), plastic and rubber (21-23%), and textile, apparel, and footwears (12-15%) under the tariff only scenario (see Appendix XX). The growth in these sub-sectors offset the output decline in basic metal, iron and steel, electrical and electronics, pulp and paper, other manufacturing, and wood sub-sectors.

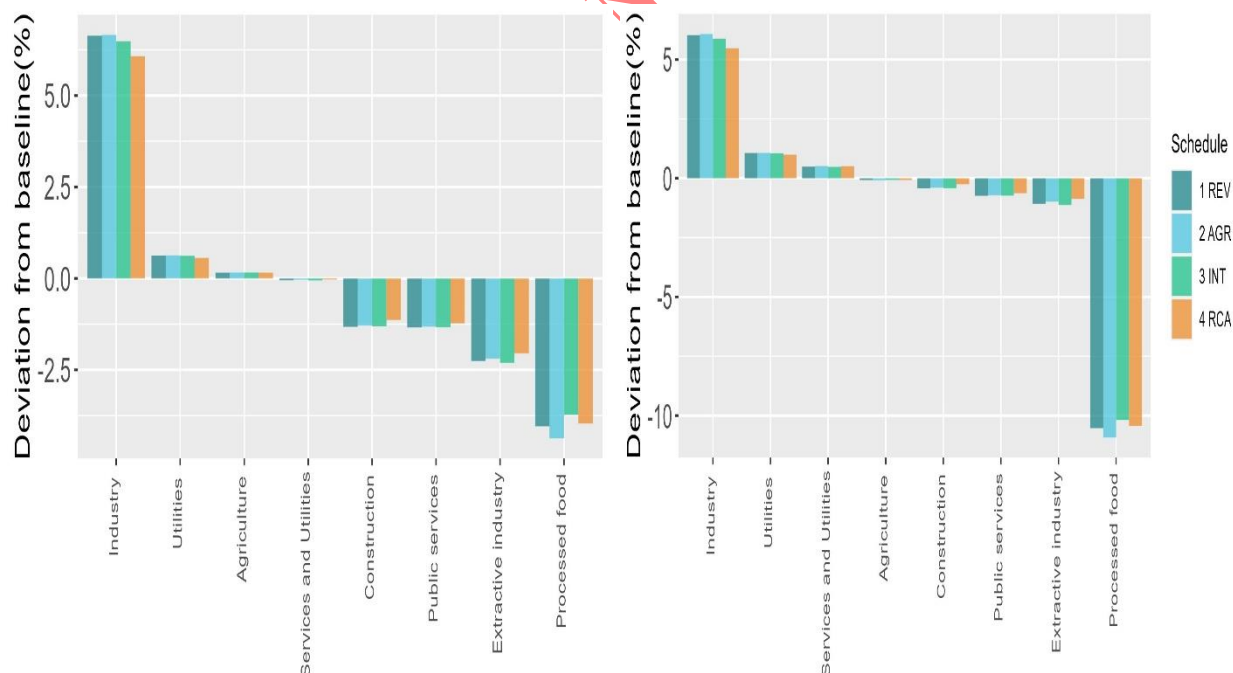


The effect on the output of the agriculture sector is very insignificant, as output growth under both scenarios is lower than 0.5%. Regional agricultural activities grew in all the regions except the Southwest (see Appendix XXX). The increase in the output of the agriculture across the regions is largely offset by the decline in regional agricultural activities in the Southwest, resulting in a very small effect on the aggregated agriculture sector. Meanwhile, the effect on the processed food sector is negative. The output of the sector declines by about 2.5-3% under the tariff only scenario; and by 8.75-9.2% under the tariff and NTMs scenario, with the largest negative effect recorded in the agricultural trade liberalisation 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 the imports of food-related commodities increase, albeit at a relatively competitive price, the domestic production and output of the processed food sector declines.

4.2.4 Employment impact

The AfCFTA is expected to affect the labour market in Nigeria due to re-allocation of production factors across sectors and regions. Infact, the potential effects of the AfCFTA on wages and employment are one of the major concerns of the Nigerian labour union in disapproving the signing and ratification of the agreement. As revealed in Figure XXX, the AfCFTA will have effect on employment in a manner that is largely reflective of the effects on sectoral output.

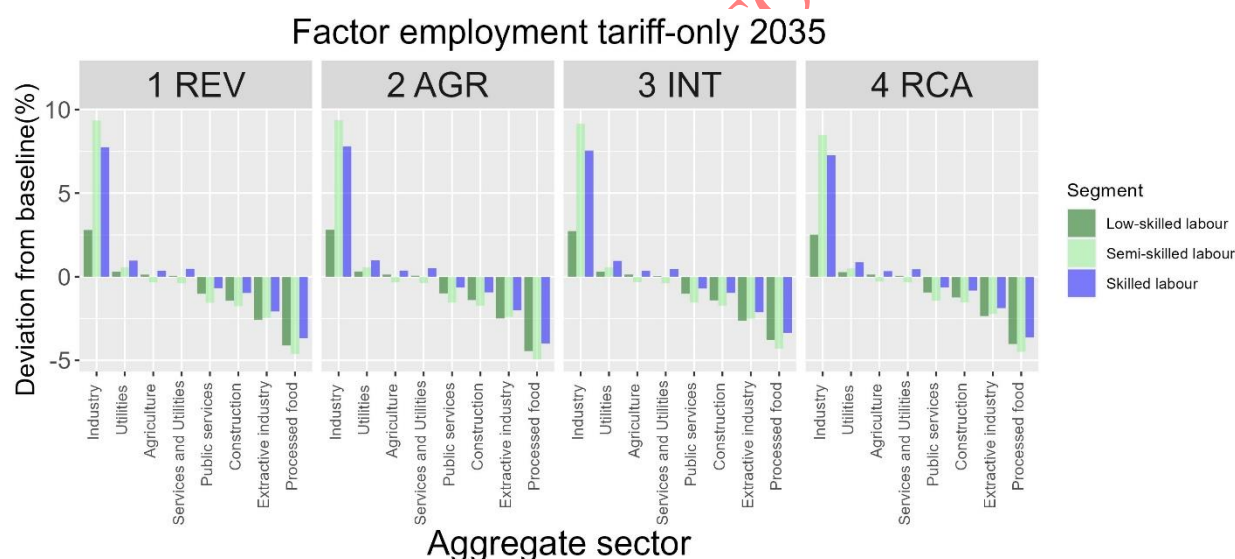
Typically, if the AfCFTA leads to an increase in the output of a sector, it is expected that re-allocation of production factors will be re-orientated towards that sector. The increase in the output of the industry sector leads to an increase in the demand for labour almost in the same proportion as the increase in sectoral output. The demand for labour in the industry sector increases by 6-7% under the tariff only scenario, with the agricultural trade liberalisation schedule having the largest effect. The demand for labour in the utilities (0.6-0.625%), agriculture (0.25%), and services and utilities (0.13%) also increase under the tariff only scenario. In contrast, demand for labour fall in the construction (1.1-1.25%), public services (1.2-1.25%), extractive industry (2-2.3%), and the processed food sectors (3.75-4.4%). 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 grows marginally, the demand for labour in the sector falls, partly due to the re-allocation of labour to sectors. The fall in the demand for labour in the processed food sector is much larger (10-11%) under the tariff and NTMs scenario, also reflecting the output effect. Also, the negative effect is larger for the agricultural trade liberalisation schedule.

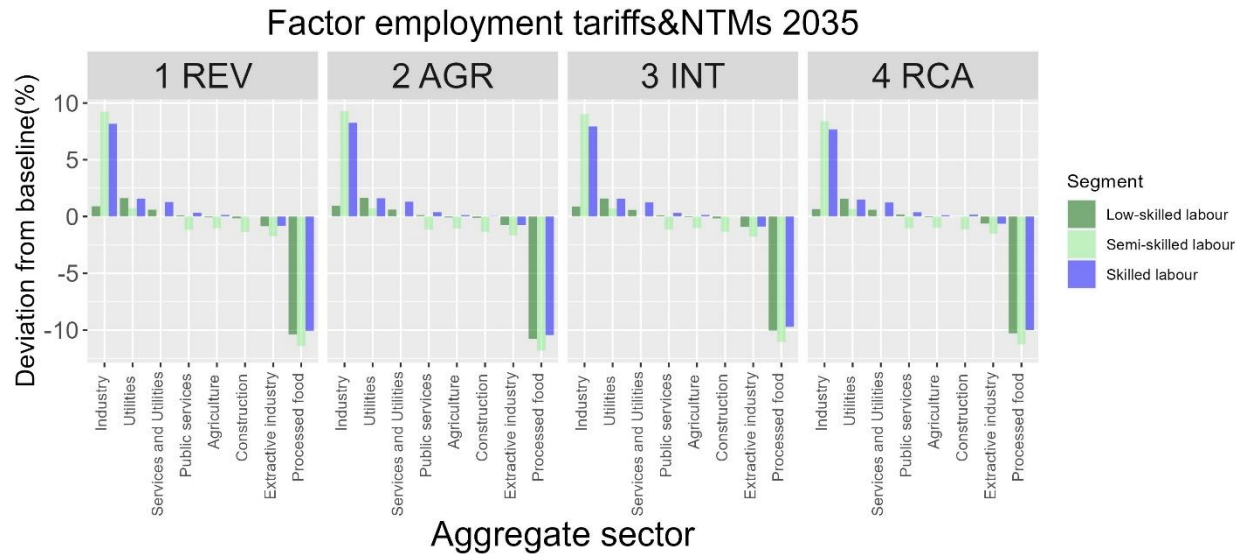


The AfCFTA also has a differential effect on labour, based on skills level, suggesting that the AfCFTA has varied effects on low-skilled, semi-skilled and skilled labour. Under the tariff only

scenario, in the industrial sector which has the largest labour demand, semi-skilled labour has the largest gains under all the liberalisation schedule, followed by skilled and unskilled labour. The demand for semi-skilled in the industrial sector under the liberalisation schedules increases by 8-9%. In the other sectors with labour demand growth, such as utilities, agriculture, services and utilities, the demand for skilled labour is relatively higher. In sectors, whose demand for labour decline, the decrease in the demand for low-skilled and semi-skilled labour is more prominent, suggesting that skilled workers are less proportionately affected by the AfCFTA.

Under the tariff and NTMs scenarios, the results are similar but much larger. The growth in the demand for skilled labour in the industrial sector is much larger than in the tariff only scenario. In sectors with an overall reduction in demand for labour (including agriculture and processed food), semi-skilled labour is disproportionately impacted. The negative effect on labour demand in the processed food sector is more than double the effect witnessed under the tariff only scenario.





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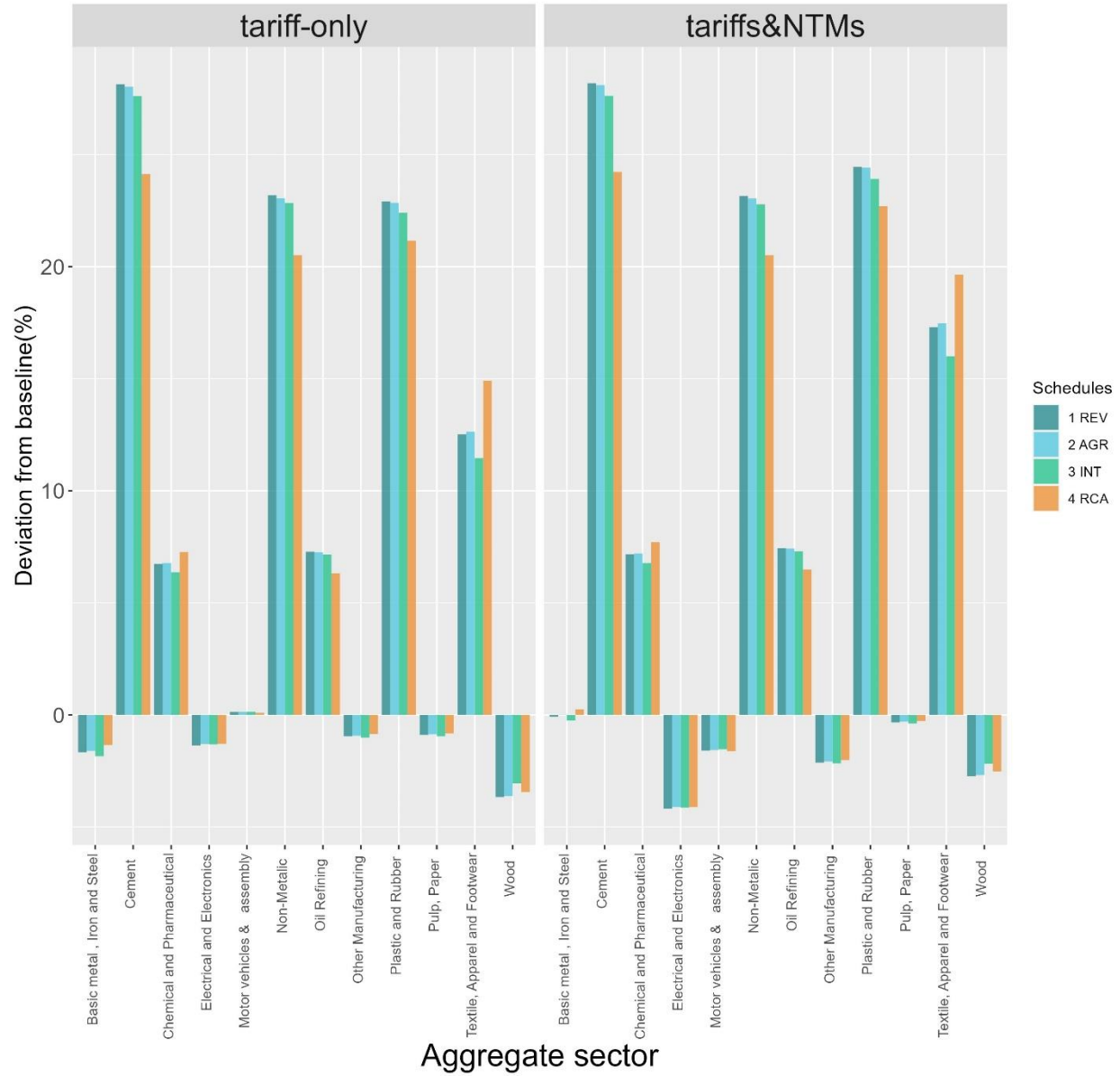
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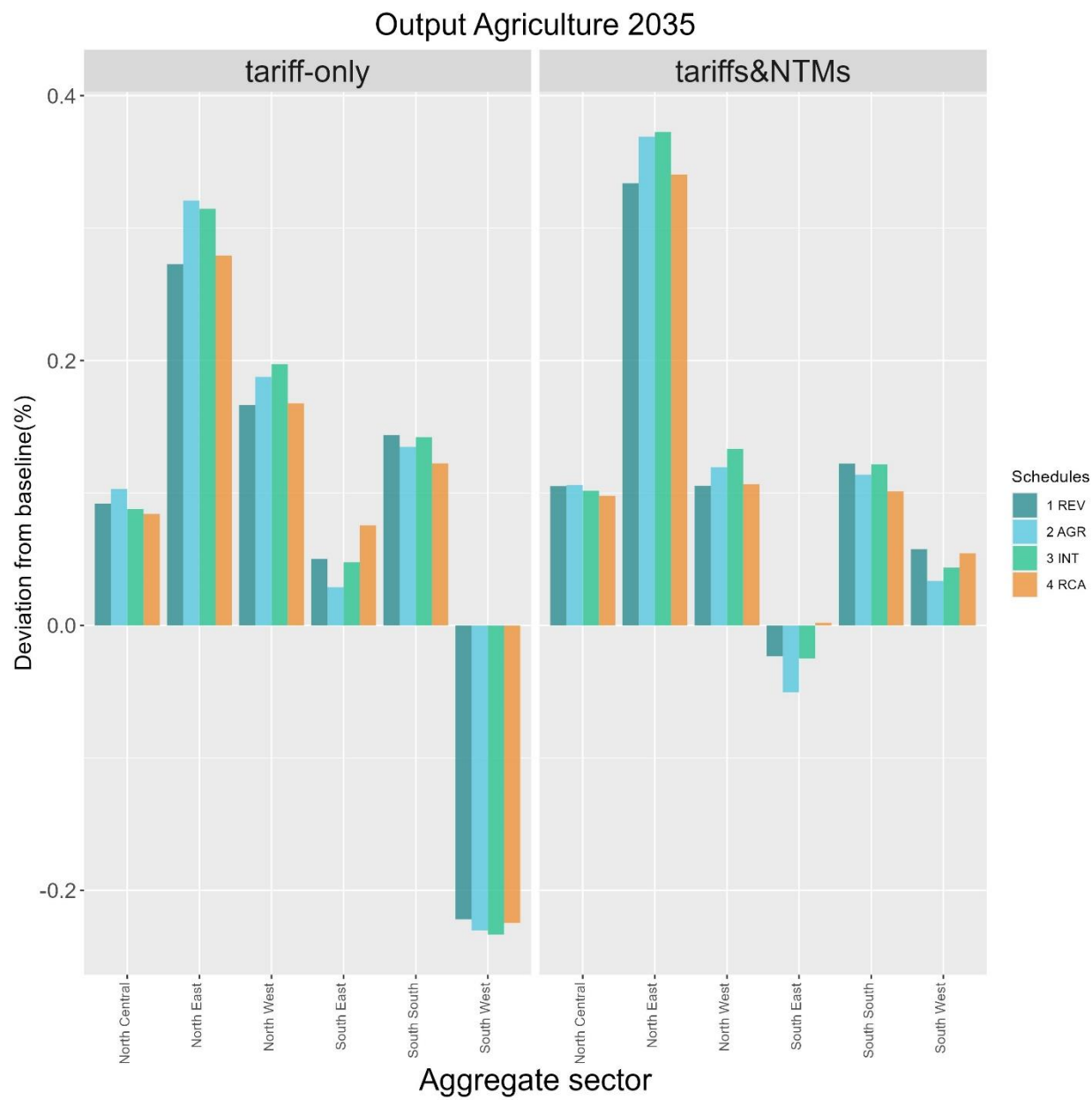
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Appendix

Output Industry 2035



WORK-1



WORK-1