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Trade, revenue, and welfare effects of the AfCFTA on the EAC: An application of WITS-SMART simulation model

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[Correction Statement: Correction added on 13 November 2020 after first online publication: The correct version of Figure 2 has been applied in this version.]

Abstract

The paper estimates the likely effects of the AfCFTA on the east african community (EAC) countries. The paper adopts two approaches. First, a trend analysis of the EAC exports and imports to and from the rest of Africa and the world at large using data from the Trade Map database. Second, we use the WITS-SMART analytical framework. It is established that the EAC countries mainly export agricultural commodities and products, and minerals, which are not likely to be readily imported by the rest of Africa. This is because between 2001 and 2018, the African continent heavily relied on external markets for exports and imports. Therefore, signing the AfCFTA agreement is a welcome step, but it may not necessarily increase EAC trade with the rest of African and intra-African trade. Results for the trade effects suggest a mixed effect among the EAC countries. All the EAC countries incur tariff revenue losses, although this varies in absolute amounts and proportions. Whereas Uganda and Burundi experience positive welfare effects, Kenya, Tanzania, and Rwanda experience negative welfare effects. The policy implications include: a need to build capacity for production; pursue product diversification and sophistication; innovate and attract investments; adopt high international products standards; and target industrialization as a must.

KEYWORDS

AfCFTA, CET, intra-EAC, product, rest of Africa, revenue, trade, welfare

1 | INTRODUCTION

At the beginning of 2018, 44 African Countries committed to create a common market for Africa, the African Continental Free Trade Area (AfCFTA). Following this milestone, 22 African countries ratified the treaty bringing it into force by May 2019 (Tralac, 2019). The agreement targets to bring together the 55 African Union (AU) countries with a potential market of more than 1.2 billion people and a combined gross domestic product (GDP) of more than US\$3.4 trillion (Tralac, 2019). The report further quotes estimates from the Economic Commission for Africa, which suggest that the AfCFTA has the potential both to boost intra-African trade by 52.3% (by 2022) by eliminating import duties (90%) and to double this trade if non-tariff barriers are also reduced. The report concludes that the AfCFTA has the potential to hasten economic growth in African countries and to promote citizens' prosperity

and wellbeing. There is a debate on what this means for African countries, with optimists arguing that the new agreement creates a fertile ground for the development of stronger and more productive economic ties, while the skeptics dismiss it altogether. Irrespective of the different viewpoints, there will ultimately be winners and losers given that this is what trade liberalization and free trade agreements lead to. This is exacerbated by the fact that harmonizing Africa's heterogeneous economies under one agreement is a challenge. There is wide variation that exists in their levels of development and the East African Community (EAC) Partner States are not an exception.

Trade integration can propel development and has generated success stories on other continents (IMF, 2018) and Africa is not an exception. This is because if African countries are likely to specialize in the production of goods and services for which they have comparative advantage and to exploit economies of scale, thereby improving



productivity and growth. Furthermore, it has the potential to foster structural transformation by spreading knowledge and technology and spurring the development of new products (IMF, 2017). This will give a chance for Africa to boost intra-continental trade from the current 15–18%, attract foreign direct investment and facilitate the development of regional supply chains, which have been key engines of economic transformation in other regions. According to Tralac (2019), the AfCFTA is also expected to enhance competitiveness at the industry and enterprise level through exploitation of opportunities for scale production, continental market access, and better reallocation of resources. The four freedoms of movement of goods, services, people, and capital are likely to play a significant role in triggering continental growth. Consequently, this will boost employment creation on continent and provide a variety of quality products and services at competitively lower prices.

While trade supports growth, it may also entail costs, and its benefits may not be evenly distributed across and within countries (IMF, 2018). Therefore, the envisaged economic prosperity may not come smoothly and there are challenges that need to be addressed. For instance, United Nations Conference on Trade and Development (UNCTAD, 2018) estimates tariff revenue loss of about US\$ 4.1 billion. The AfCFTA is envisaged to create high international competition leading to bigger African economies standing to benefit more than smaller ones due to relative productive capacities of their economies (Tralac, 2019). Furthermore, international competition may also expose small and weak companies to foreign giant companies due to deregulation or reduced protectionism. Liberalization of domestic labor markets will also expose nationals to competition from cheap foreign labor. Capital mobility being high may also encourage outsourcing leading to loss of jobs.

Tralac (2019) suggests that some of these challenges may be addressed through: scheduled special and differential treatment for smaller African economies to allow them to do gradual incremental deregulation and to adjust structurally. There should be fair negotiations on harmonization of investment and competition policies, transparency of government procurement, and trade facilitation. Participating countries will have to design new economic development policies and restructure their economies to make them more effective and responsive to the agreement. Notwithstanding these prescriptions, there are genuine concerns that further integrating economies with those of other countries may benefit some industries and hurt others, negatively affect earnings and employment opportunities in certain sectors and skill levels and reduce fiscal revenues.

The EAC has made significant strides in a relatively short record period. Since its inception in 200 and later in 2005 as a customs union, the EAC region has metamorphosed to a common market and is currently negotiating a monetary union. The main success has been the growth in intra-EAC trade that has reached an average of 19% making it the best performer among Africa's regional economic blocs. The experiences at this level can serve as lessons for the EAC as it participates in the implementation of the AfCFTA agreement. Given that the AfCFTA negotiations adopted an approach of working with already existing regional economic communities, the EAC countries

are negotiating as a bloc. This implies that Uganda, Kenya, Tanzania, Rwanda, Burundi, and South Sudan have to harmonize their tariff offers to be presented for negotiations.

The AfCFTA negotiations have started and they are divided into two Phases. Phase I negotiations are currently underway and they cover trade in goods, services, and dispute settlement. Phase II negotiations were set to be concluded by the end of 2020 and cover investment, intellectual property rights competition policy, and e-commerce (UNECA, 2019; UNIDEP, 2020). The pertinent questions for the EAC countries that this study attempts to answer include What is the potential effect of the AfCFTA on the EAC trade with the rest of Africa (RoA)? What are the likely revenue effects for the EAC countries? What are the sectors to leverage in participating in the continental trade, and which sectors are likely to face stiff competition? How will the AfCFTA affect welfare and income redistribution of the EAC countries? What policies are needed to foster further regional trade integration or mitigate the negative impacts if any? This study seeks to among others answer these questions and provide an understanding of what it implies for the EAC to liberalize trade with the RoA. Effectively, the analysis provides an empirical basis for the ongoing tariff liberalization for the EAC at the AfCFTA.

2 | LITERATURE REVIEW

The analytical foundations on the theory of free trade are laid by the seminal work of Smith, Strahan, and Cadell (1776)—the *Wealth of Nations*. It expounded on the theory of absolute advantage showing that countries would benefit from free trade if they specialized in the production of goods where they were more efficient (i.e., where they had a competitive advantage). His principle of absolute advantage was an extension of the concept of division of labor among individuals to a division of labor among nations. Ricardo's (1817) theory on the principle of comparative advantage posits that a country can benefit from free trade even if it has (or does not have) an absolute productivity advantage in producing every good. Heckscher (1919) and Ohlin (1933) extend Ricardo's (1817) analysis by examining the determinants of comparative advantage and the effect that trade has on the earnings of the factors of production. Their analysis shows that a nation is better off exporting a commodity whose production requires the intensive use of the nation's relatively abundant and cheap factor of production and import a commodity whose production requires the intensive use of the nation's relatively scarce and expensive factor of production.

Economic integration theories mainly focus on free trade areas and Custom Unions. A free trade area (FTA) is the form of economic integration where all barriers are removed on trade among members, but each nation retains its own barriers to trade with non-members. On the other hand, a CU eliminates tariffs or other barriers on trade among members and harmonizes trade policies (such as the setting of the common external tariff rates) toward the rest of the world (RoW). This paper benefits from the FTA framework as propounded by Viner (1950), which provided the initial economic analysis on

economic integration. He argues that the trade creating effect is larger when the members have a net benefit while a trade diverting effect is predominant when the members suffer a net loss.

Trade creation is associated with a shift in domestic consumption from a high cost domestic producer to a lower cost partner producer due to tariff reduction or removal. It occurs when the tariff reduction increases trade between the members belonging to a preferential trade area. In this study, with trade creation, the EAC countries trade with other African countries would increase. Figure 1 below describes the trade creation effect. Reducing tariffs on imports from partner A (African countries) lowers the domestic price of the commodity coming from A. It is associated with a revenue effect, which allows reaching a higher composite quantity curve q_1 . For the same expenditure level, consumers can now import more of the variety coming from A (A_1-A_2). The increase in imports due to a tariff reduction is balanced by a decrease in imports from all non-African countries. For the market, the total trade effect is only trade creation. For exporting countries, total trade effect is made of trade diversion and trade creation. Beneficiaries of the tariff reduction enjoy both positive diversion effect (A_0-A_1) and positive creation effect (A_1-A_2) while all other partners will suffer from negative diversion effect (B_0-B_1) and no trade creation effect (no B_2 on the graphics).

Trade diversion occurs when members belonging to a preferential trade area substitute imports previously sourced from non-members for those from members belonging to the preferential trade area. In this way, consumption shifts from a low cost producer (non-FTA member) to a higher cost partner because of the tariff reduction or removal on the exports of the FTA members. With trade diversion, the EAC countries would substitute exports from the rest of the world (without Africa) for exports from other African countries. Figure 2 below describes the trade diversion effect.

Granting preferential tariff reduction to partner A (African countries) reduces the relative price compared with partner B (rest of the world). The consumption of the composite good remains unchanged but the relative price line gets steeper. This leads to a new equilibrium (E_1) where imports from partner A increase (from A_0-A_1) while the imports from partner B symmetrically decrease (from B_0 to B_1). The total trade effect is obtained by summing up the trade creation effects and trade diversion effects.

The tariff revenue effect is the difference between the value of tariff revenue from imports from African countries before the FTA

agreement and after. Figure 3 below shows the reduction in the initial tariff (t_0) to the new tariff (t_1). The right hand panel shows that when the tariff decreases from t_0 to t_1 , the consumer surplus (CS) increases, tariff revenue (TR) reduces, deadweight loss (DWL) decreases, and welfare (W) increases. The loss in TR for the EAC countries from imports from African countries (only) is estimated as the new import value (initial trade plus total trade effect) multiplied by the new tariff (initial tariff plus change in tariff) less the initial import value multiplied by the initial tariff.

The change in welfare ($\Delta W_{[1,0]}$ in Figure 3) for the importing country's economy comprises of two effects. The first effect is the additional TR because of the increase in imports (rectangle part of $\Delta W_{[1,0]}$) and the second effect is the additional CS as a result of the increase in imports (triangle part of $\Delta W_{[1,0]}$).

Empirical literature demonstrates that when countries economically integrate, there are both winners and losers. Cramon-Taubadel, Hess, and Brümmer (2010) argue that trade creation is more likely when the countries forming a Free Trade Area (FTA) have different comparative advantages. On the other hand, trade diversion is more likely when the countries forming an FTA are similar in terms of comparative advantages. Shibata's (1967) incorporated the rules of origin concept in the study of FTAs. He based on his analysis on the assumptions of perfect competition, with partners importing identical products and producing domestically perfect substitutes of the identical product. He shows that the differential treatment of the identical product according to its origin may create an artificial price differentiation between the area-origin product and the non-area-origin product.

Abrego, Amado, Gursoy, Nicholls, and Perez-Saiz (2019) use a multi-country, multi-sector general equilibrium model to estimate the welfare effects of the AfCFTA for 45 African countries. The study makes simulations involving the full elimination of import tariffs and a tariff-equivalent reduction in Non-Tariff Barriers (NTBs) by 35% for the 45 countries. Under a perfect competition scenario, the results show that welfare improves by 0.05% with tariff elimination and by 1.7% with a reduction in NTBs for all the countries. Furthermore, welfare increases by 2.1% for all the countries for simulations involving both tariff elimination and reduction in NTBs.

Guei, Mugano, and Le Roux (2017) examine the revenue, welfare, and trade effects of European Union Free Trade Agreement on

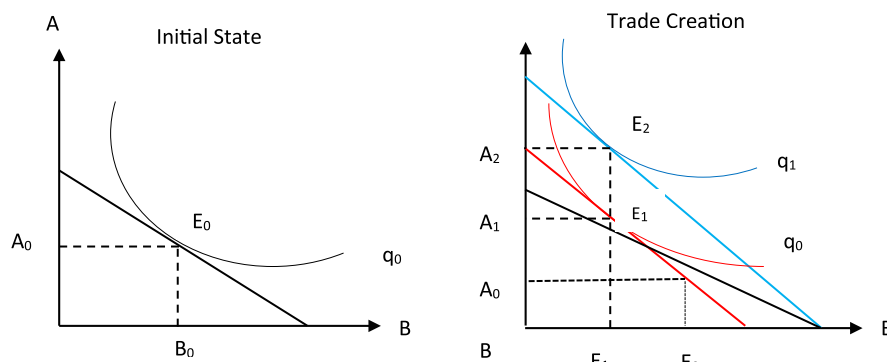


FIGURE 1 Trade creation effect.

Source: WITS SMART user manual (WITS, 2011)

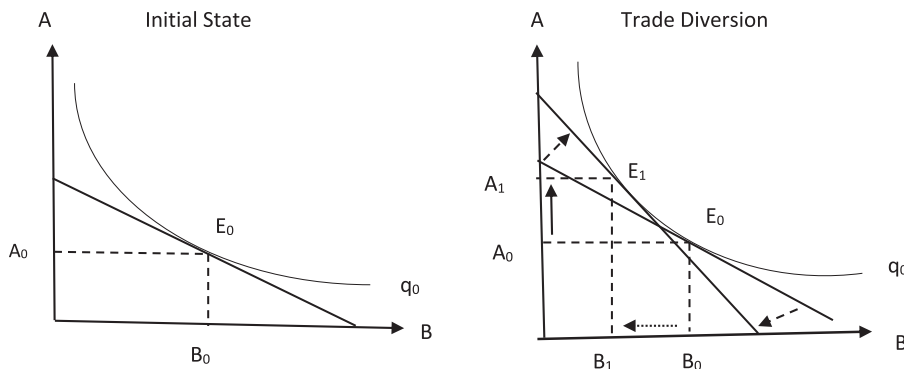


FIGURE 2 The trade diversion effect. Source: WITS SMART user manual (WITS, 2011)

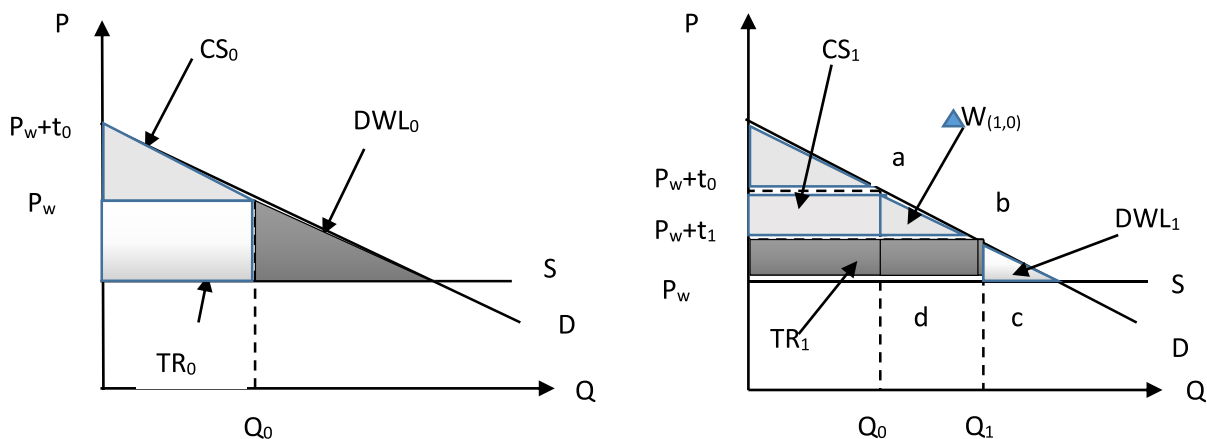


FIGURE 3 Change in consumer surplus, tariff revenue, deadweight loss, and welfare. Source: WITS SMART User manual (WITS, 2011)

South Africa. They apply the WITS-SMART¹ model on 2012 data. They find that the agreement would result in a total trade effect of US \$ 1,035 million in South Africa while the loss in revenue is equivalent to US\$ 562 million. The study also finds that the CS of US\$ 134.45 million would be realized as a result of the agreement.

Punt and Sandrey (2016) use 2014 data to estimate the likely trade effects on Zambia joining a Free Trade Agreement with South Africa. Unlike previous studies, they use an Excel spreadsheet to simulate the likely effects of reducing tariffs by 80% and eliminating tariffs on all imports from South Africa. In addition, they use a more realistic export supply elasticity of 10% as opposed to the infinite export supply elasticity used in most studies. While excluding products of high import value, they find that the total trade effect for an 80% tariff reduction is US\$ 460 million compared to the US\$ 572 million when all tariffs are eliminated. However, the revenue loss (with elimination of all tariffs) is much greater than when on 80% of tariffs are removed.

Chauvin, Ramos, and Porto (2016) examine the likely effects of the AfCFTA on trade, growth, and welfare in Burkina Faso, Cameroon, Cote d'Ivoire, Ethiopia, Madagascar, and Nigeria by considering four incremental liberalization scenarios.² They find that the trade, growth, and welfare effects for each of these African countries are contingent on the modalities of trade liberalization with

greater gains coming from the reduction of NTBs in goods and on the improvement of trade facilitation conditions. Further still, they indicate that the AfCFTA would lead to asymmetric changes in trade patterns among African countries and within countries across sectors with unequal changes being partially explained by the current disparities in tariffs across countries. They also find that the short-run impacts of AfCFTA are generally very small (with some economic costs) while the long-run impacts are largely positive (such as the achievement of higher GDP growth). The study indicates that welfare gains for each country are greater with more intra-Africa integration, but with heterogeneity in the welfare effects in a given country and across countries.

Villa, Abella, and Herrera (2012) use disaggregated trade data for 2010 to measure the effects of the preferential trade agreement between Canada and Columbia. The study adopts a partial equilibrium model based on the proposed tariff schedules. For Canada, the results show that trade worth US\$ 9.2 millions would be created with Columbia while the US\$ 6.5 millions would be diverted from other partners. For Columbia, the results show that trade worth US\$114.1 millions would be created with Canada, while US\$ 70 millions would be diverted from other partners.

Calderón and Poggio (2010) examine the effects of trade on growth among the Central America-Dominican Republic Free Trade

Agreement countries. They apply the generalized method of moments on a panel data of 136 countries covering a period from 1960 to 2010. They find that trade has a strong and positive impact on growth especially in countries with higher levels of education and innovation, deeper financial markets, a stronger institutional framework, more developed infrastructure networks, a high level of integration with world capital markets, and less stringent economic regulations. Mevel and Karingi (2012) use the Modelling International Relationships in Applied General Equilibrium Computable General Equilibrium model to examine the impact of the AfCFTA on African countries. The study finds that the creation of the AfCFTA would stimulate Africa exports to the world by 4.0% (worth US\$ 25.3 billion). In addition, intra African trade would increase by 52.3% (worth US\$ 34.6) with the AfCFTA in place. This is the closest study to ours, however, it is at a continental level and the current study intends to make a contribution to the EAC bloc.

The reviewed literature indicates that the theoretical underpinnings of economic integration have been evolving over time as one theory seeks to fill what is missing and strengthen the previous theories. The literature also indicates that various empirical methodologies have been used to study the effects of economic integration on member and non-member countries. These include the Computable General Equilibrium model, Partial Equilibrium model, WITS-SMART Model and the Excel Based Microsimulation. A number of studies have examined the potential effects of the AfCFTA on participating countries. However, there is limited work examining the impact of the AfCFTA on the regional trading blocs (more specifically the EAC). In addition, most studies, apart from Punt and Sandrey (2016) do not use the disaggregated specific commodity tariff rates. Therefore, this study examines the potential effects of the AfCFTA on the EAC countries using the proposed tariff rates by Kenya.

3 | METHODOLOGY

The paper adopts the single market partial equilibrium simulation tool (SMART) model for its analytical framework following from the work of Jammes and Olarreaga (2005). The SMART model is a partial equilibrium (PE) model built on the core postulation of the Armington assumption, which assumes that imports from different countries are imperfect substitutes. It is inbuilt in the World Integrated Trade Solution (WITS) software. The SMART model can be used to analyze the impact of a domestic trade reform as it provides insights into the distribution of the potential gains and losses from any contemplated policy changes. Thus, it can be useful in predicting any adjustment costs associated with reform implementation. It also provides an analytical framework for examining the impact of foreign trade liberalization (WITS, 2011).³ It thus simulates the possible impact of a given trade policy intervention or reforms (tariff changes) for a single market on key variables including trade flows (exports, imports, and trade effects), TR variations, economic welfare effects, and other measures (Othieno & Shinyekwa, 2011).

The SMART being a PE model, has advantages and disadvantages while conducting the analysis. It permits an analysis at a fairly disaggregated level - which is the basis for tariff negotiations, and this view is supported by Milner, Morrissey, and McKay (2005). However, it misses important interactions and feedback between various markets because it neglects the important inter-sectoral input/output linkages a basis of general equilibrium analysis (WITS, 2011). It also excludes the existing constraints that apply to the various factors of production and their movement across sectors.

The model uses three elasticities, namely: *Supply elasticities*, which are assumed to be infinite (=99), implying that an increase in demand for a given product due to tariff liberalization is followed by producers and exporters appropriately responding. This is rather unrealistic given that in practice this is not possible owing to supply side constraints and a time lag response. We instead use supply elasticities (10) that recognize production and supply side constraints in order to be more exact. This implies that lowering and removing tariffs may not automatically lead to increased supply, which is a more realistic assumption. *Import substitution elasticities*, which measure the rate of substitution between two goods from different origins. The model assumes that the import substitution elasticity is 1.5 for each good, which is close to the real world. *Import demand elasticity* measures the demand response to a shift in import price (WITS, 2011).

Trade diversion occurs when members belonging to a preferential trade area substitute imports previously sourced from non-members for those from members belonging to the preferential trade area. In this study, with trade diversion, the EAC countries would substitute exports from the rest of the world (without Africa) for exports from other African Countries. Following Jammes and Olarreaga (2005), trade diversion under the assumption of elastic supply can be expressed as:

$$TD_{i,k} = \frac{m_{i,\neq k} * m_{i,k} * \frac{dt_{i,k}}{(1+t_{i,k})} * \sigma_{i,k,\neq k} \left[\frac{(m_{i,k} + m_{i,\neq k})\mu_{i,k}}{(m_{i,k} + m_{i,\neq k})\mu_{i,k} - m_{i,\neq k}} \right]}{m_{i,\neq k} + m_{i,k} + m_{i,\neq k} * \frac{dt_{i,k}}{(1+t_{i,k})} * \sigma_{i,k,\neq k} \left[\frac{(m_{i,k} + m_{i,\neq k})\mu_{i,k}}{(m_{i,k} + m_{i,\neq k})\mu_{i,k} - m_{i,\neq k}} \right]} \quad (1)$$

where $TD_{i,k}$ is the trade diversion of product (i), which is the value of EAC countries imports of product (i) that were previously imported from the rest of the world ($\neq k$) that are now imported from African countries (k); $m_{i,k}$ is the initial import value of product (i) by EAC countries from African countries (k); $m_{i,\neq k}$ is the initial import value of product (i) by EAC countries from the rest of the world ($\neq k$); $dt_{i,k}$ is the change in tariff rate of product (i) imported by EAC countries from African countries (k); $t_{i,k}$ is the initial tariff rate of product (i) imported by EAC countries from African countries (k); $\sigma_{i,k,\neq k}$ is the elasticity of substitution with respect to relative prices of the same product from different sources of supply, and $\mu_{i,k}$ is the elasticity of export supply by African countries (k) with respect to export price of product (i).

Trade creation occurs when tariff reduction increases trade between the members belonging to a preferential trade area. In this study, with trade creation, the EAC countries trade with other African countries would increase. Reducing tariffs on imports from an African country lowers the domestic price of the imported commodity, which

is associated with an increase in the imports. The increase in imports from African economies due to the tariff reduction is balanced by a decrease in imports from the rest of the world. For exporting countries, the total trade effect is made of trade diversion and trade creation. Under the assumption of elastic supply, trade creation is estimated as;

$$TC_{i,k} = \varepsilon_{i,k} * m_{i,k} * \frac{dt_{i,k}}{(1+t_{i,k})} * \frac{1}{(1-\varepsilon_{i,k}/\mu_{i,k})} \quad (2)$$

where $TC_{i,k}$ is the trade created from product (i), which is the value of new imports of product (i) imported by EAC countries from African countries (k) and $\varepsilon_{i,k}$ is the elasticity of import demand with respect to domestic price.

According to (WITS, 2011), the price effect reflects a rise in the world price for the product whose demand increases following the tariff reduction (also known as the terms of trade effect). It is the additional import value of imports by EAC countries from African countries because of the increased world price. In line with Punt and Sandrey (2016), under the assumption of elastic export supply, the change in world price can be expressed as:

$$dp_{i,k}^w = \frac{TC_{i,k} + TD_{i,k}}{\mu_{i,k}} \quad (3)$$

where $dp_{i,k}^w$ is the change in world price (price received by exporter) of product (i) exported by African countries (k). In the Excel spreadsheet simulation, only the partner country's price effect is reported and it represents the additional import value of imports by EAC countries from Africa due to the increase in the prices in the rest of the world.

The total trade effect is obtained by summing up the trade creation effects, trade diversion effects, and the price effect. Following Punt and Sandrey (2016), the total trade effect is expressed as:

$$TT_{i,k} = TC_{i,k} + TD_{i,k} + dp_{i,k}^w \quad (4)$$

where $TT_{i,k}$ is the total trade effect from product (i) imported by EAC countries from African countries (k). The Excel spreadsheet simulation reports only the effects for the preference receiving countries, which in this case are the African countries (k).

The TR effect is the difference between the value of the TR from imports from African countries before the AfCFTA and after. The change in revenue ($dR_{i,k}$) is calculated as the new tariff revenue (TR_1) less the initial tariff revenue (TR_0), where the TR in each instance is calculated as the relevant quantity imported (Q) multiplied by the relevant tariff rate (t):

$$dR_{i,k} = TR_1 - TR_0 \quad (5)$$

$$dR_{i,k} = Q_1 * t_1 - Q_0 * t_0 \quad (6)$$

In the Excel spreadsheet simulation, the loss in TR for the EAC countries from imports from African countries (only) is estimated as the new import value (initial trade plus total trade effect) multiplied by

the new tariff (initial tariff plus change in tariff) less the initial import value multiplied by the initial tariff, as follows:

$$dR_{i,k} = (m_{i,k} + TT_{i,k}) * (t_{i,k} + dt_{i,k}) - (m_{i,k} * t_{i,k}) \quad (7)$$

where $dR_{i,k}$ is the change in TR to EAC countries from product (i) imported by EAC countries from African countries (k).

According to WITS (2011), a change in welfare for the EAC importing country's economy comprises of two effects. The first effect is the additional TR because of the increase in imports and the second effect is the additional CS as a result of the increase in imports. Note that the increase in imports in this study is calculated as the total trade effect. The formula for obtaining the welfare effect is expressed as:

$$dW_{i,k} = [TT_{i,k} * (t_{i,k} + dt_{i,k})] + [0.5 * TT_{i,k} * dt_{i,k}] \quad (8)$$

where $dW_{i,k}$ is the change in welfare as a result of product (i) imported by EAC countries from African countries (k). In the Excel spreadsheet simulation, the change in welfare is because of trade with only the African countries.

3.1 | Data used

The study uses export and import trade data obtained from Trade Map database of the International Trade Center (ITC). For the pre-AfCFTA, import tariff rates imposed by EAC countries and the most recent MFN rates for each country were used. For the post-AfCFTA rates, the study uses the new tariff rates proposed by Kenya given that the rest of the EAC Partner States did not have complete lists of offers by the time of this study.⁴ Table 1 gives a summary of the proposed tariff rates.

3.2 | Scenario definition and the excel spreadsheet simulation

The negotiating position for the EAC in the ongoing AfCFTA negotiations is yet to be harmonized by the Partner States. The study uses an Excel spreadsheet simulation proposed by Punt and Sandrey (2016) to determine the revenue, trade, and welfare effects to the EAC countries (except South Sudan) participating in the AfCFTA. For the base tariffs, each country we use the most recent Most Favored Nation (MFN) tariffs.

4 | RESULTS AND DISCUSSION

4.1 | Value of EAC import trade from the rest of the world

Table A1 summarizes the average import trade value of each EAC Partner State from the RoW for the top 20 products. These products account for 77–86⁵ percent of imports suggesting that they form the largest proportion of the import bill. Delving into the characteristics of

TABLE 1 Categorization of products and the proposed tariff lines

| Category (%) | 0 | 10 | 25 | 35 | 50 | 60 | 100% or \$ 460/MT whichever is higher | 25 or \$200/ MT whichever is higher | 35 or USD 0.40/kg whichever is higher | 75 or \$345/ MT whichever is higher | Grand Total | Share (%) |
|--------------|-------|-------|-------|-----|-----|-----|---------------------------------------|-------------------------------------|---------------------------------------|-------------------------------------|-------------|-----------|
| A | 2,128 | 1,155 | 1,892 | | | | | 20 | | | 5,195 | 91.3 |
| B | | 4 | 380 | | | | | 14 | | | 398 | 7 |
| C | | | 24 | 13 | 18 | 16 | 9 | 5 | 6 | 4 | 95 | 1.7 |
| Total | 2,128 | 1,159 | 2,296 | 13 | 18 | 16 | 9 | 39 | 6 | 4 | 5,688 | 100 |
| Share (%) | 37.4 | 20.4 | 40.4 | 0.2 | 0.3 | 0.3 | 0.2 | 0.7 | 0.1 | 0.1 | 100.00 | |

Note: Source: EAC Secretariat.

Abbreviations: A, non-sensitive products to be liberalized first. B, sensitive products to be liberalization starting the sixth year after commencement of tariff rate dismantling. C, excluded products from liberalization to be reviewed after every 5 years.

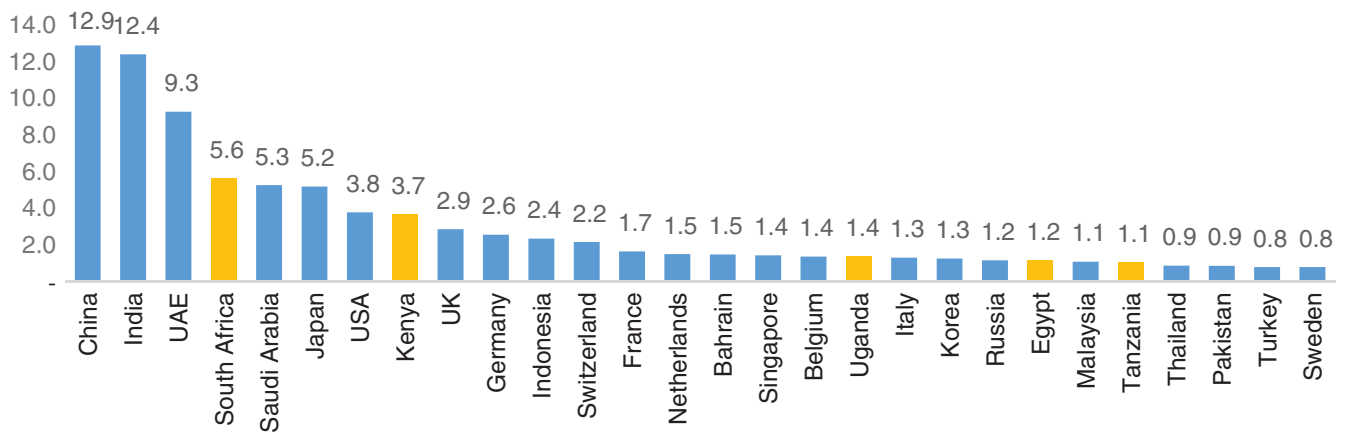


FIGURE 4 Leading sources of EAC average imports value between 2001 and 2018 (%). Data source: Trademap (ITC)

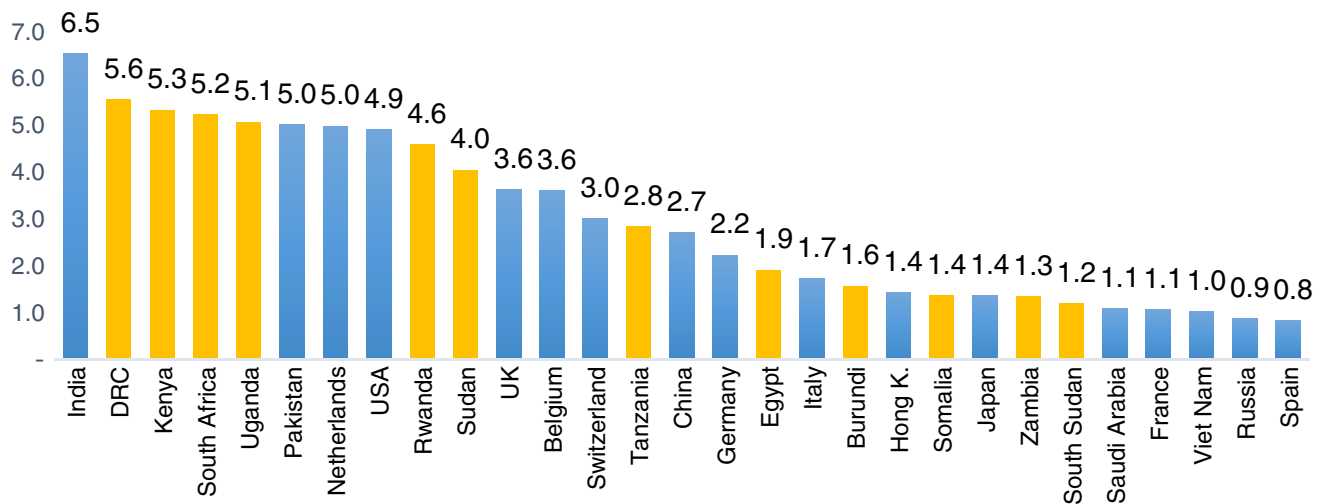


FIGURE 5 Leading destinations of EAC average export value between 2001 and 2018(%). Data source: Trademap (ITC)

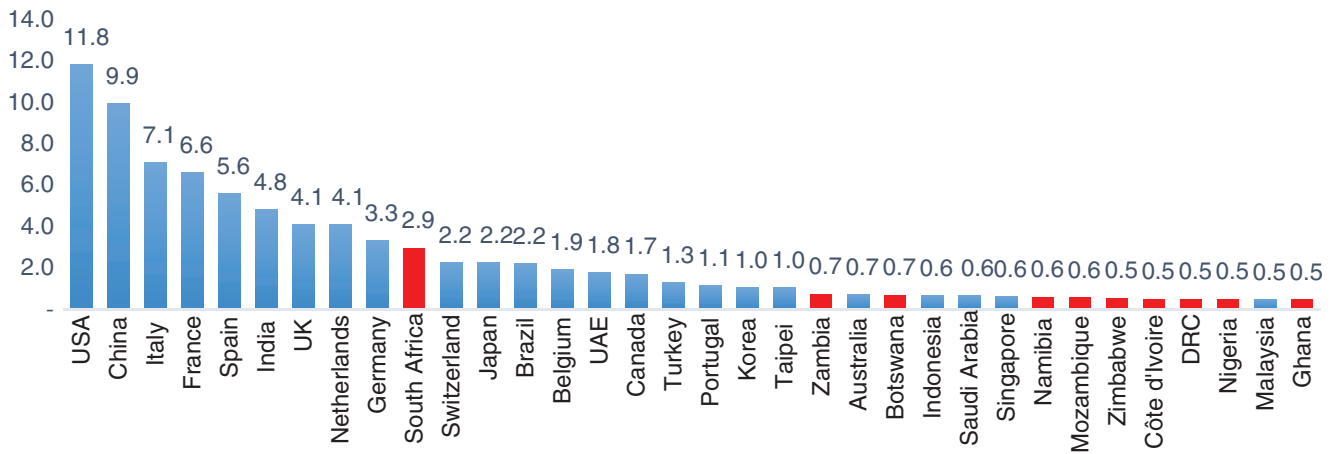


FIGURE 6 African export destinations average for 2001–2018 (%). Data source: TradeMap (ITC)

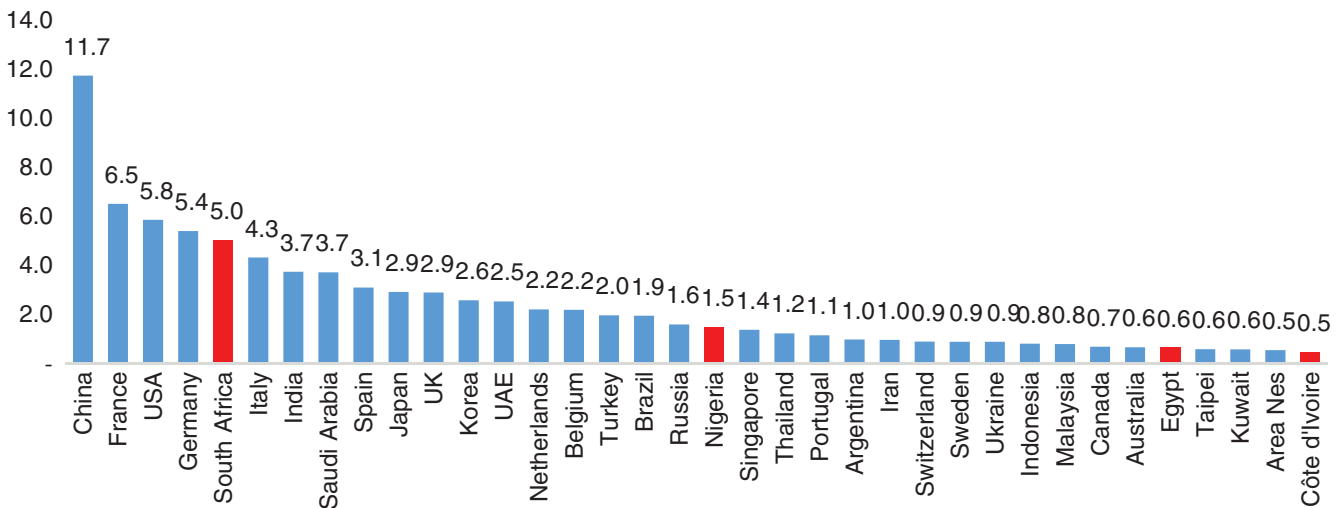


FIGURE 7 African import sources average for 2001–2018 (%). Data source: Trademap (ITC)

the products suggests that mineral fuels and fossil oils account for the largest proportion ranging from 11 to 29%. These are followed by machinery, vehicles, electrical machinery, pharmaceuticals, iron and steel, plastics, cereals among others. It is observed that these imports are not likely to be readily supplied by the RoA to the EAC Partner States. The RoA does not have the competitive edge in the production of these products hence trade diversion from the RoW to the RoA. This is likely to result in a loss of welfare arising from the inability to competitively supply the aforementioned products. Therefore, the continent has to build capacity in the production of these products and to overcome supply side constraints if increased intra-African trade is to be realized. However, because this cannot be done in the short run and medium term, African countries need to develop long-term strategies to achieve this.

Figure 4 details the leading sources of EAC Partner States' imports for the period 2001–2018, which suggests that Asia is the leading source, followed by Europe and a few African countries.

Among the top three; China is the leading source of imports followed by India and United Arab Emirates. South Africa is the only African

country outside the EAC that is among the top four leading import sources. The other leading African countries are all EAC Partner States with the exception of Egypt. The results suggest that looking to the RoA for the major import products destined to the EAC is farfetched in the short run and medium term. Without conscious strategies and requisite investments at the continental level, the EAC region will continue to import from outside Africa rendering the AfCFTA ineffective and redundant. In effect, signing agreements to liberalize trade is a necessary but not sufficient condition to increase intra-African trade.

4.2 | Value of EAC export trade to the rest of the world

Table A2 provides a summary of the average export value of each EAC Partner States to the RoW for the top 32 products, selected because they meet the criterion of constituting 80% of exports. These products account for 81–93% of exports suggesting that they form the largest proportion of

TABLE 2 Trade, Revenue, and welfare effects of EAC liberalizing under the AfCFTA (US\$ 000)

| Indicator | Uganda | Kenya | Tanzania | Rwanda | Burundi |
|-------------------------------------|-----------|------------|-----------|-----------|---------|
| Proportion from Africa | 17 | 9 | 11 | 18 | 21 |
| Imports from Africa | 934,939 | 1,516,025 | 822,751 | 341,624 | 165,836 |
| Imports from the RoW without Africa | 4,660,909 | 15,173,948 | 6,942,63 | 1,858,019 | 617,429 |
| Imports from the whole world | 5,595,848 | 16,689,973 | 7,765,390 | 2,199,643 | 783,265 |
| Trade creation: New AfCFTA trade | -1,189 | 4,311 | -3,328 | -2,899 | 8,290 |
| Trade diversion ^a : | 4,988 | 389 | -1,860 | -258 | 361 |
| Price effect: AfCFTA only | 379 | 470 | -519 | -316 | 865 |
| Total Trade Effect: AfCFTA only | 4,179 | 5,171 | -5,708 | -3,472 | 9,517 |
| Original tariff revenue | 176,476 | 357,888 | 143,608 | 71,013 | 48,573 |
| New tariff revenue | 162,984 | 343,702 | 138,269 | 67,074 | 34,193 |
| Tariff revenue effect (loss) | -13,492 | -14,186 | -5,338 | -3,938 | -4,380 |
| Welfare effect | 3,286 | -515 | -3,136 | -835 | 5,338 |

Note: Source: SMART-WITS results.

^aPreviously from RoW, now from AfCFTA.

the export revenue source. Coffee, tea, mate, and spices are the leading export earners for Uganda, Kenya, Rwanda, and Burundi and they range from 22 to 38%. On the other hand, Tanzania's leading export products are natural or cultured pearls, precious or semi-precious stones, precious metals, and they account for 32% of the total export value.

The overall exports for the EAC region are commodities, including but not limited to: cut flowers, tobacco, salt, plastics, iron and steel, animal or vegetable oils, sugar, beverages, pharmaceuticals, fish, edible oils, and citrus mineral fuels. The results suggest that the EAC region mainly exports agricultural commodities or products and mineral ores, which are not likely to be readily imported by the RoA. One of the factors explaining the limited intra-African trade is the continental inability to diversify and the production of similar commodities, which are not likely to be readily demanded by member states.

Figure 5 details the leading destinations of EAC Partner States exports (average) for the period 2001–2018. The destinations suggest a mix of regions with Africa taking a fair share. However, when the intra-EAC exports are excluded, the EAC's export trade with the RoA significantly diminishes.

This suggests that the EAC region is starting from a point of significant intra-regional exports, and therefore, has a lot to do to penetrate the RoA trade destinations. The next region is Europe with Netherlands, United Kingdom, Switzerland, Germany, Italy, France, and Spain being the leading export destinations. The third region is Asia: India, followed by Pakistan, China, Hong Kong, and Japan. The results suggest that for the EAC, looking to the RoA as an export destination is promising especially; light manufactured products, although this may require a long term strategy to be fully realized and achieved.

4.3 | Comparative analysis of African's exports and imports

To gain further insights into the potential trade between the EAC and the RoA, we analyze the main characteristic of the products traded by

Africa as a continent. The summary in Table A3 suggests that the continent is largely an exporter of mineral fuels, which constitute over 50% and the importers are mainly outside the African continent. These products are followed by: natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad, ores, slag and ash, vehicles, electrical machinery, iron and steel, copper, machinery, cocoa and cocoa preparations, edible fruit and nuts, peel of citrus fruit or melons among others. On the other hand, the leading imports are: mineral fuels, mineral oils and products; machinery, mechanical appliances, nuclear reactors, boilers and parts; vehicles other than railway or tramway rolling stock, and parts and accessories; electrical machinery and equipment and parts; sound recorders and reproducers; cereals; pharmaceutical products; iron and steel; plastics and articles among others. The heavy reliance on countries outside the continent for these products will make it difficult for African countries to supply these products in the short run. This result suggests that significant trade among African countries is still hampered by the limited technological advancement to support heavy manufacturing.

Figure 6 further illustrates that the bulk of the continent's exports are destined for the United States of America, Europe, and Asia, which account for over 75% of Africa's export Trade. Within Africa, South Africa accounts for the highest proportion, which is an average of 3%. The other African countries include: Zambia, Botswana, Namibia, Mozambique, Zimbabwe, Democratic Republic of Cong, Nigeria, and Ghana and they together constitute about 5%. This indicates that only about 8% of the top 34 African export destinations are African countries.

On the other hand, Africa's imports were mainly sourced from non-African countries as demonstrated in Figure 7 where only four African countries (South Africa, Nigeria, Egypt, and Ivory Coast) are among the top 36 sources for the continent's imports and they account for a dismal figure of about 8%. The bulk of the imports—about 80%, were sourced from the Asia and Europe and the United States of America. It is thus observed that between 2001 and 2018, Africa's imports and exports

were mainly dominated by non-African economies. This is the starting point for the efforts to increase intra-African imports and exports. The nature and characteristics of the products suggest that the continent exports largely commodities, (mineral ores and natural pearls) and imports sophisticated high and intensive technology products.

Given such a scenario, the EAC is not likely to automatically increase trade with the RoA after signing and ratifying the AfCFTA, rather strategic measures to improve and upgrade the quality of products produced by the region should be taken into account. In addition to trade facilitation, reduction and elimination of tariff and NTBs, other measures such as innovation, attraction of investments into the region, and the continent and adoption of high international products standards should be consciously and judiciously implemented to boost intra-African trade.

4.4 | Trade, welfare, and revenue effects of the EAC liberalizing trade with the AfCFTA

Table 2 summarizes the value of import trade for each of the EAC Partner States sourced from Africa, outside Africa, and the combination of the two to give an understanding of the current value of trade and the patterns thereof. There are basically two observations from the analysis. In 2018, Kenya was the largest importer within the EAC followed by Tanzania, Uganda, Rwanda, and finally Burundi. Imports from Africa are extremely small for all the countries in comparison to imports from the RoW suggesting that the EAC heavily relies on the RoW and less on the RoA. They range from 9 to 21%. This implies that for the EAC, the implementation of the AfCFTA starts at a point when there is limited trade with the continent.

In absolute amounts, Kenya incurs the largest TR loss of US\$ 14.2 million followed by Uganda with US\$13.5 million, Tanzania US\$5.3 million, Burundi US\$4.3 million, and Rwanda US\$ 3.9 million. In terms of proportional losses of the TR, Burundi incurs the largest proportion of 30%, followed by Uganda with 7.6%, Rwanda 5.5%, Kenya 4%, and Tanzania 3.7%. The overall result is that EAC Partner States incur losses but at varying levels and proportions depending on the quantities and value of imports involved.

Regarding trade creation, Kenya creates a total of US\$4.3 million and Burundi up to a tune of US\$8.3 million. On the other hand Uganda, Tanzania, and Rwanda will not create trade in the short run. Consequently, these countries will significantly lose as a result of liberalizing in the short run. Especially for Uganda this will be accompanied by a significant trade diversion of a value of US\$4.9 million, which further disadvantages the country because this will come at a cost of more expensive imports. Kenya will experience a very small trade diversion of about US\$0.4 million, which can be internalized by the high value of trade created. Rwanda and Tanzania on the other hand are likely to experience a negative trade diversion. The overall trade effect is positive for Uganda largely arising from trade diversion to a tune of US\$4.2 million. Note that trade diversion is not necessarily the best thing to happen as it comes with higher costs of imported products and hence welfare losses to consumers. Therefore, the

analysis suggests that Uganda initially might not benefit much from liberalizing trade under the AfCFTA. Burundi significantly benefits from trade liberalization given that its total trade effect is US\$9.7 million, which is largely accounted for by trade creation than trade diversion, followed by Kenya with US\$5.2 million.

Therefore, the consumers in Burundi and Kenya do not experience significant welfare losses given that trade creation is far larger than trade diversion. This analysis suggests that Burundi will be the leading beneficiary of the liberalization among the EAC Partner States. Tanzania has the largest negative trade effect of US\$5.7 million suggesting that it loses more than the other EAC Partner States following trade liberalization with the RoA. This is followed by Rwanda with a trade effect loss of US\$3.5 million.

The welfare changes for the EAC Partner States, which are the importing economies arises from the additional revenue as a result of the increase in imports and the additional CS as a result of the increase in imports. Results suggest that whereas Uganda and Burundi experience a positive welfare effect, Kenya, Tanzania, and Rwanda experience negative welfare effect. Specifically, Burundi's positive effect is US\$5.3 million and Uganda's is US\$3.3 million. Tanzania has the largest welfare loss of US\$3.1 million.

5 | CONCLUSION

The paper estimates the likely effects of the AfCFTA on the EAC economies. This is premised on the rationale that this process will enhance the ability of the EAC Partner States to negotiate based on empirical evidence. Results reveal that the average import value of EAC Partner States from the RoW for the top 20 products account for an average of over 80% of imports and the RoA does not have the competitive edge in the production of some of these products. Therefore, the RoA will not readily and satisfactorily supply these to EAC Partner States in the short run. This is because significant trade among African countries is still hampered by the limited technological advancement among many other factors. Therefore, signing agreements to liberalize trade is a welcome move but it will not necessarily guarantee an increase in intra-African trade. The overall exports for the EAC region are commodities, which are not likely to be readily imported by the RoA. The leading destinations for the EAC Partner States exports are a mix of regions with Africa taking a fair share and intra-EAC exports taking the largest proportion.

The EAC countries incur TR losses; however, there is significant variation in absolute amounts and proportions. Kenya incurs the largest TR loss followed by Uganda, Tanzania, Burundi, and Rwanda. Results for the trade effects suggest a mixed effect among the EAC partner states. Whereas Burundi and Kenya are likely to experience positive trade effects largely arising from trade creation, Tanzania and Rwanda will experience negative trade effects. Uganda's positive trade effect is explained by trade diversion, which has implications on the welfare of the citizens. Regarding the welfare effect, whereas Uganda and Burundi experience

positive welfare effects, Kenya, Tanzania, and Rwanda experience negative welfare effects. Therefore, the consumers in Uganda and Burundi are more likely to relatively experience positive welfare effect compared to the others. Notable is that Tanzania has the largest welfare loss.

The policy implications that arise from the study include: The EAC and Africa at large should build capacity in the production of products, which are largely imported from outside the region. This partly means that the African countries need to address the supply side constraints using long-term strategies embedded in regional and continental frameworks and strategies. In addition to trade facilitation, reduction, and elimination of tariff and NTBs, other measures should consciously and judiciously be implemented to boost intra-African trade. These may include innovation, attraction of investments into the region and the continent, adoption of high international products standards, product and services diversification, and sophistication. To mitigate the negative effects of trade diversion, that is high cost of imports and hence welfare losses, the EAC and Africa at large should target increasing competitiveness by significantly lowering the unit costs of production. To get Africa to trade with itself, the continent should implement industrialization as a must in order to reduce the low value commodity hemorrhage, which fetches less revenue.

ENDNOTES

- ¹ WITS is World Integrated Trade Solutions and SMART is single market partial equilibrium simulation tool.
- ² The first scenario assumes the elimination of tariffs on primary and agricultural goods. The second scenario assumes elimination of tariffs on primary, agricultural, and manufactured goods. The third scenario adds a 50% reduction in Non-Tariff Measures on goods between African countries to the second scenario of intra-Africa tariff elimination on goods. The fourth scenario considers a 30% reduction in transaction costs associated with time.
- ³ Manual version 2.01.
- ⁴ The AfCFTA agreement negotiations are meant to build on existing regional blocs, thus the EAC countries are expected to harmonise their tariff offers and negotiate as a bloc.
- ⁵ We use a threshold of an average 80% value of imports as a cut off point for inclusion of products in the list.

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APPENDIX A.

TABLE A1 Average import trade value and proportion of EAC Partner States between 2001 and 2018 US\$ (000)

| Code | Products | Uganda | | Kenya | | Rwanda | | Burundi | | Tanzania | |
|--|---|-----------|-------|------------|-------|-----------|-------|---------|-------|-----------|-------|
| | | Value | % | Value | % | Value | % | Value | % | Value | % |
| 0 | All products | 4,053,658 | 100 | 11,165,062 | 100 | 1,369,006 | 100 | 503,198 | 100 | 7,302,184 | 100 |
| 27 | Mineral fuels, mineral oils, and products of their distillation | 805,946 | 19.88 | 2,406,219 | 21.55 | 160,125 | 11.7 | 91,332 | 18.15 | 2,163,925 | 29.63 |
| 84 | Machinery, mechanical appliances | 358,369 | 8.84 | 1,122,306 | 10.05 | 120,455 | 8.8 | 32,883 | 6.53 | 772,030 | 10.57 |
| 87 | Vehicles other than railway or tramway rolling stock | 355,344 | 8.77 | 864,138 | 7.74 | 105,716 | 7.72 | 46,618 | 9.26 | 670,425 | 9.18 |
| 85 | Electrical machinery and equipment and parts thereof | 333,219 | 8.22 | 839,935 | 7.52 | 144,252 | 10.54 | 33,616 | 6.68 | 488,090 | 6.68 |
| 30 | Pharmaceutical products | 206,269 | 5.09 | 338,120 | 3.03 | 60,732 | 4.44 | 36,371 | 7.23 | 203,329 | 2.78 |
| 72 | Iron and steel | 196,803 | 4.85 | 482,580 | 4.32 | 54,362 | 3.97 | 21,882 | 4.35 | 259,596 | 3.56 |
| 39 | Plastics and articles thereof | 172,416 | 4.25 | 467,810 | 4.19 | 39,332 | 2.87 | 9,965 | 1.98 | 312,683 | 4.28 |
| 10 | Cereals | 165,609 | 4.09 | 466,577 | 4.18 | 63,655 | 4.65 | 20,214 | 4.02 | 232,220 | 3.18 |
| 15 | Animal or vegetable fats and oils and their cleavage | 163,177 | 4.03 | 405,450 | 3.63 | 51,112 | 3.73 | 6,844 | 1.36 | 208,878 | 2.86 |
| 25 | Salt; sulfur; earths, and stone; lime and cement | 97,445 | 2.4 | 66,979 | 0.6 | 51,715 | 3.78 | 18,900 | 3.76 | 56,142 | 0.77 |
| 48 | Paper and paperboard; articles of paper pulp, of paper | 90,483 | 2.23 | 241,517 | 2.16 | 23,693 | 1.73 | 9,112 | 1.81 | 85,447 | 1.17 |
| 63 | Other made-up textile articles; sets; worn clothing and worn | 79,486 | 1.96 | 126,898 | 1.14 | 36,930 | 2.7 | 11,153 | 2.22 | 71,058 | 0.97 |
| 17 | Sugars and sugar confectionery | 78,729 | 1.94 | 151,566 | 1.36 | 39,505 | 2.89 | 8,128 | 1.62 | 86,047 | 1.18 |
| 38 | Miscellaneous chemical products | 67,381 | 1.66 | 201,581 | 1.81 | 17,599 | 1.29 | 4,392 | 0.87 | 102,155 | 1.4 |
| 90 | Optical, photographic, cinematographic, measuring, checking, precision, medical | 66,814 | 1.65 | 154,814 | 1.39 | 31,685 | 2.31 | 8,530 | 1.7 | 97,262 | 1.33 |
| 73 | Articles of iron or steel | 57,926 | 1.43 | 212,065 | 1.9 | 42,407 | 3.1 | 9,918 | 1.97 | 198,211 | 2.71 |
| 40 | Rubber and articles thereof | 51,383 | 1.27 | 139,422 | 1.25 | 13,846 | 1.01 | 6,677 | 1.33 | 130,882 | 1.79 |
| 33 | Essential oils and resinoids; perfumery, cosmetic or toilet | 49,414 | 1.22 | 89,629 | 0.8 | 11,117 | 0.81 | 4,396 | 0.87 | 55,073 | 0.75 |
| 22 | Beverages, spirits, and vinegar | 39,890 | 0.98 | 42,357 | 0.38 | 11,135 | 0.81 | 6,315 | 1.25 | 37,683 | 0.52 |
| 29 | Organic chemicals | 39,873 | 0.98 | 113,435 | 1.02 | 5,164 | 0.38 | 1,239 | 0.25 | 57,230 | 0.78 |
| Average top 20 products as a proportion of total imports | | 86 | | 80 | | 80 | | 77 | | 86 | |

Note: Data source: Trademap (ITC).

TABLE A2 Average export trade value and proportion of EAC Partner States between 2001 and 2018 US (000)

| Code | Product label | Uganda | | Kenya | | Rwanda | | Burundi | | Tanzania | |
|------|--|-----------|--------|-----------|--------|---------|--------|---------|--------|-----------|--------|
| | | Value | % | Value | % | Value | % | Value | % | Value | % |
| 0 | All products | 1,700,000 | 100.00 | 4,500,000 | 100.00 | 389,393 | 100.00 | 135,167 | 100.00 | 3,300,000 | 100.00 |
| 9 | Coffee, tea, maté, and spices | 369,906 | 22.16 | 1,100,000 | 24.24 | 94,408 | 24.25 | 51,561 | 38.15 | 172,389 | 5.25 |
| 6 | Live trees and other plants; such as bulbs, roots and cut flowers | 42,913 | 2.57 | 435,949 | 9.68 | 478 | 0.12 | 91 | 0.07 | 28,842 | 0.88 |
| 27 | Mineral fuels, mineral oils, and products of their distillation; bituminous | 99,389 | 5.95 | 351,981 | 7.82 | 48,834 | 12.54 | 1,303 | 0.96 | 47,697 | 1.45 |
| 7 | Edible vegetables and certain roots | 34,516 | 2.07 | 216,941 | 4.82 | 4,435 | 1.14 | 61 | 0.05 | 105,470 | 3.21 |
| 24 | Tobacco & manufactured tobacco | 59,830 | 3.58 | 124,272 | 2.76 | 136 | 0.04 | 2,462 | 1.82 | 162,967 | 4.97 |
| 25 | Salt; sulfur; earths and stone; plastering materials, lime and cement | 52,739 | 3.16 | 122,671 | 2.73 | 3,606 | 0.93 | 57 | 0.04 | 33,839 | 1.03 |
| 62 | Articles of apparel and clothing accessories, not knitted or crocheted | 1,386 | 0.08 | 120,434 | 2.68 | 249 | 0.06 | 23 | 0.02 | 6,527 | 0.20 |
| 39 | Plastics and articles thereof | 16,482 | 0.99 | 115,113 | 2.56 | 1,325 | 0.34 | 1,307 | 0.97 | 33,522 | 1.02 |
| 72 | Iron and steel | 52,692 | 3.16 | 110,167 | 2.45 | 2,985 | 0.77 | 1,308 | 0.97 | 23,848 | 0.73 |
| 20 | Preparations of vegetables, fruit, nuts, or | 3,683 | 0.22 | 105,090 | 2.34 | 377 | 0.10 | 26 | 0.02 | 7,055 | 0.22 |
| 15 | Animal or vegetable fats and oils and their cleavage products; prepared edible | 53,512 | 3.21 | 95,754 | 2.13 | 7,848 | 2.02 | 98 | 0.07 | 55,471 | 1.69 |
| 28 | Inorganic chemicals; organic or inorganic compounds of precious metals, | 2,617 | 0.16 | 94,057 | 2.09 | 155 | 0.04 | 134 | 0.10 | 4,914 | 0.15 |
| 61 | Articles of apparel and clothing accessories, knitted or crocheted | 1,176 | 0.07 | 82,769 | 1.84 | 392 | 0.10 | 7 | 0.01 | 9,904 | 0.30 |
| 30 | Pharmaceutical products | 7,469 | 0.45 | 80,797 | 1.80 | 280 | 0.07 | 119 | 0.09 | 2,156 | 0.07 |
| 8 | Edible fruit and nuts; peel of citrus fruit or | 2,825 | 0.17 | 76,855 | 1.71 | 318 | 0.08 | 345 | 0.26 | 160,777 | 4.90 |
| 34 | | 22,342 | 1.34 | 75,852 | 1.69 | 1,571 | 0.40 | 2,392 | 1.77 | 16,738 | 0.51 |

(Continues)

TABLE A2 (Continued)

| Code | Product label | Uganda | | Kenya | | Rwanda | | Burundi | | Tanzania | |
|------|--|---------|------|--------|------|--------|-------|---------|-------|-----------|-------|
| | | Value | % | Value | % | Value | % | Value | % | Value | % |
| | Soap, organic surface-active agents, | | | | | | | | | | |
| 84 | Machinery, mechanical appliances, nuclear reactors, boilers; parts thereof | 34,839 | 2.09 | 64,852 | 1.44 | 4,786 | 1.23 | 1,313 | 0.97 | 47,923 | 1.46 |
| 85 | Electrical machinery and equipment and parts thereof; sound recorders and | 52,048 | 3.12 | 64,139 | 1.43 | 4,379 | 1.13 | 1,246 | 0.92 | 50,800 | 1.55 |
| 87 | Vehicles other than railway or tramway rolling stock, and parts and | 37,872 | 2.27 | 58,156 | 1.29 | 10,384 | 2.67 | 5,574 | 4.12 | 13,346 | 0.41 |
| 48 | Paper and paperboard; articles of paper pulp, of paper or of paperboard | 10,822 | 0.65 | 53,429 | 1.19 | 1,121 | 0.29 | 135 | 0.10 | 26,119 | 0.80 |
| 17 | Sugars and sugar confectionery | 51,614 | 3.09 | 52,990 | 1.18 | 1,759 | 0.45 | 1,108 | 0.82 | 16,327 | 0.50 |
| 22 | Beverages, spirits, and vinegar | 29,090 | 1.74 | 50,464 | 1.12 | 5,951 | 1.53 | 2,846 | 2.11 | 9,793 | 0.30 |
| 41 | Raw hides and skins and leather | 30,066 | 1.80 | 49,466 | 1.10 | 6,370 | 1.64 | 2,321 | 1.72 | 10,490 | 0.32 |
| 73 | Articles of iron or steel | 25,070 | 1.50 | 48,959 | 1.09 | 706 | 0.18 | 282 | 0.21 | 13,344 | 0.41 |
| 26 | Ores, slag, and ash | 7,275 | 0.44 | 43,739 | 0.97 | 98,192 | 25.22 | 4,742 | 3.51 | 348,777 | 10.63 |
| 3 | Fish and crustaceans, molluscs, and other aquatic invertebrates | 120,237 | 7.20 | 42,978 | 0.96 | 751 | 0.19 | 181 | 0.13 | 161,182 | 4.91 |
| 49 | Printed books, newspapers, pictures, and other products of the printing | 5,881 | 0.35 | 42,634 | 0.95 | 126 | 0.03 | 30 | 0.02 | 1,258 | 0.04 |
| 71 | Natural or cultured pearls, precious or semi-precious stones, precious metals, | 105,112 | 6.30 | 40,027 | 0.89 | 31,137 | 8.00 | 44,603 | 33.00 | 1,100,000 | 32.57 |
| 76 | Aluminum and articles thereof | 2,265 | 0.14 | 38,640 | 0.86 | 446 | 0.11 | 268 | 0.20 | 4,568 | 0.14 |
| 63 | Other made-up textile articles; | 9,461 | 0.57 | 34,786 | 0.77 | 3,958 | 1.02 | 224 | 0.17 | 52,775 | 1.61 |
| | Average top 32 products as a proportion of total exports | | 81 | | 89 | | 87 | | 93 | | 82 |

Note: Data source: Trademap (ITC).

TABLE A3 Comparison of African exports and imports in value (US\$ 000) and %-2001 and 2018

| | Product label | Average export | % | Average imports | % |
|-----|---|----------------|-------|-----------------|--------|
| All | | 370,000,000 | 100 | 388,555,492 | 100.00 |
| 27 | Mineral fuels, mineral oils, and products of their distillation; bituminous substances; mineral ... | 190,000,000 | 51.13 | 58,330,179 | 15.01 |
| 71 | Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ... | 29,000,000 | 7.83 | 2,748,756 | 0.71 |
| 26 | Ores, slag, and ash | 13,000,000 | 3.40 | 1,682,530 | 0.43 |
| 87 | Vehicles other than railway or tramway rolling stock, and parts and accessories thereof | 9,000,000 | 2.40 | 32,877,700 | 8.46 |
| 85 | Electrical machinery and equipment and parts thereof; sound recorders and reproducers, TV. | 8,600,000 | 2.29 | 31,797,651 | 8.18 |
| 72 | Iron and steel | 7,700,000 | 2.07 | 12,422,791 | 3.20 |
| 74 | Copper and articles thereof | 7,200,000 | 1.94 | 2,362,765 | 0.61 |
| 84 | Machinery, mechanical appliances, nuclear reactors, boilers; parts thereof | 6,900,000 | 1.84 | 47,652,116 | 12.26 |
| 62 | Articles of apparel and clothing accessories, not knitted or crocheted | 6,000,000 | 1.61 | 2,522,929 | 0.65 |
| 18 | Cocoa and cocoa preparations | 6,000,000 | 1.59 | 595,301 | 0.15 |
| 8 | Edible fruit and nuts; peel of citrus fruit or melons | 5,000,000 | 1.35 | 1,072,157 | 0.28 |
| 28 | Inorganic chemicals; organic or inorganic compounds of precious metals, of rare-earth metals | 4,100,000 | 1.11 | 3,646,524 | 0.94 |
| 76 | Aluminum and articles thereof | 3,700,000 | 0.98 | 2,787,459 | 0.72 |
| 3 | Fish and crustaceans, molluscs, and other aquatic invertebrates | 3,600,000 | 0.95 | 2,976,122 | 0.77 |
| 31 | Fertilizers | 3,300,000 | 0.88 | 3,225,583 | 0.83 |
| 9 | Coffee, tea, maté, and spices | 3,200,000 | 0.85 | 1,386,856 | 0.36 |
| 61 | Articles of apparel and clothing accessories, knitted or crocheted | 3,100,000 | 0.83 | 1,698,426 | 0.44 |
| 25 | Salt; sulfur; earths and stone; plastering materials, lime and cement | 3,000,000 | 0.80 | 4,275,113 | 1.10 |
| 39 | Plastics and articles thereof | 3,000,000 | 0.79 | 13,343,632 | 3.43 |
| 89 | Ships, boats, and floating structures | 3,000,000 | 0.79 | 5,115,302 | 1.32 |
| 44 | Wood and articles of wood; wood charcoal | 2,700,000 | 0.73 | 3,426,619 | 0.88 |
| 40 | Rubber and articles thereof | 2,500,000 | 0.67 | 4,865,429 | 1.25 |
| 52 | Cotton | 2,400,000 | 0.63 | 2,968,096 | 0.76 |
| 7 | Edible vegetables and certain roots and tubers | 2,300,000 | 0.62 | 1,629,856 | 0.42 |
| 24 | Tobacco and manufactured tobacco substitutes | 2,200,000 | 0.59 | 2,057,909 | 0.53 |
| 73 | Articles of iron or steel | 2,000,000 | 0.55 | 12,158,564 | 3.13 |
| 17 | Sugars and sugar confectionery | 1,900,000 | 0.50 | 4,314,046 | 1.11 |
| 29 | Organic chemicals | 1,700,000 | 0.46 | 4,488,482 | 1.16 |
| 12 | Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal ... | 1,700,000 | 0.45 | 1,625,466 | 0.42 |
| 15 | Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal ... | 1,700,000 | 0.45 | 5,996,889 | 1.54 |
| 22 | Beverages, spirits, and vinegar | 1,600,000 | 0.43 | 2,107,649 | 0.54 |
| 33 | Essential oils and resinoids; perfumery, cosmetic or toilet preparations | 1,500,000 | 0.40 | 2,671,260 | 0.69 |
| 48 | Paper and paperboard; articles of paper pulp, of paper or of paperboard | 1,300,000 | 0.36 | 5,521,264 | 1.42 |
| 16 | Preparations of meat, of fish or of crustaceans, molluscs, or other aquatic invertebrates | 1,300,000 | 0.35 | 754,320 | 0.19 |

(Continues)

TABLE A3 (Continued)

| | Product label | Average export | % | Average imports | % |
|----|---|----------------|------|-----------------|------|
| 38 | Miscellaneous chemical products | 1,300,000 | 0.35 | 5,011,666 | 1.29 |
| 41 | Raw hides and skins (other than furskins) and leather | 1,200,000 | 0.32 | 488,213 | 0.13 |
| 94 | Furniture; bedding, mattresses, mattress supports, cushions, and similar stuffed furnishings; ... | 1,100,000 | 0.30 | 3,416,779 | 0.88 |
| 20 | Preparations of vegetables, fruit, nuts, or other parts of plants | 1,100,000 | 0.29 | 1,185,506 | 0.31 |
| 64 | Footwear, gaiters and the like; parts of such articles | 1,100,000 | 0.29 | 2,029,448 | 0.52 |
| 10 | Cereals | 1,100,000 | 0.28 | 16,493,366 | 4.24 |
| 88 | Aircraft, spacecraft, and parts thereof | 1,000,000 | 0.28 | 3,909,955 | 1.01 |
| 75 | Nickel and articles thereof | 1,000,000 | 0.27 | 233,582 | 0.06 |
| 81 | Other base metals; cermets; articles thereof | 1,000,000 | 0.27 | 95,978 | 0.02 |
| 63 | Other made-up textile articles; sets; worn clothing and worn textile articles; rags | 985,083 | 0.26 | 1,984,890 | 0.51 |
| 90 | Optical, photographic, cinematographic, measuring, checking, precision, medical, or surgical ... | 985,953 | 0.26 | 6,281,484 | 1.62 |
| 99 | Commodities not elsewhere specified | 928,175 | 0.25 | 8,074,985 | 2.08 |
| 6 | Live trees and other plants; bulbs, roots and the like; cut flowers and ornamental foliage | 901,703 | 0.24 | 171,935 | 0.04 |
| 1 | Live animals | 851,548 | 0.23 | 576,661 | 0.15 |
| 34 | Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial ... | 788,623 | 0.21 | 1,791,701 | 0.46 |
| 4 | Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere ... | 732,287 | 0.20 | 3,756,604 | 0.97 |
| 21 | Miscellaneous edible preparations | 738,616 | 0.20 | 1,890,747 | 0.49 |
| 49 | Printed books, newspapers, pictures, and other products of the printing industry; manuscripts, | 750,944 | 0.20 | 1,608,891 | 0.41 |
| 30 | Pharmaceutical products | 722,784 | 0.19 | 9,623,910 | 2.48 |
| 47 | Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or ... | 715,882 | 0.19 | 353,141 | 0.09 |
| 23 | Residues and waste from the food industries; prepared animal fodder | 666,753 | 0.18 | 2,286,551 | 0.59 |
| 19 | Preparations of cereals, flour, starch or milk; pastrycooks' products | 512,512 | 0.14 | 2,118,097 | 0.55 |
| 70 | Glass and glassware | 528,428 | 0.14 | 1,481,159 | 0.38 |
| 2 | Meat and edible meat offal | 502,494 | 0.13 | 2,976,594 | 0.77 |
| 69 | Ceramic products | 483,301 | 0.13 | 2,189,583 | 0.56 |
| 11 | Products of the milling industry; malt; starches; inulin; wheat gluten | 432,190 | 0.12 | 1,579,613 | 0.41 |
| 32 | Tanning or dyeing extracts; tannins and their derivatives; dyes, pigments, and other coloring ... | 438,143 | 0.12 | 2,072,170 | 0.53 |
| 68 | Articles of stone, plaster, cement, asbestos, mica, or similar materials | 370,290 | 0.10 | 990,494 | 0.25 |
| 79 | Zinc and articles thereof | 341,741 | 0.09 | 343,475 | 0.09 |
| 13 | Lac; gums, resins and other vegetable saps and extracts | 289,104 | 0.08 | 154,413 | 0.04 |
| 82 | Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal | 283,506 | 0.08 | 1,455,365 | 0.37 |
| 86 | Railway or tramway locomotives, rolling stock and parts thereof; railway or tramway track fixt | 291,081 | 0.08 | 960,109 | 0.25 |
| 96 | Miscellaneous manufactured articles | 292,986 | 0.08 | 1,140,027 | 0.29 |
| 57 | Carpets and other textile floor coverings | 269,029 | 0.07 | 258,037 | 0.07 |

Note: Data source: Trademap (ITC).