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Trading up: Harnessing the AfCFTA for growth in Uganda

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Abstract

African economies, including Uganda, have embarked on an ambitious programme of regional integration in the form of the African Continental Free Trade Area (AfCFTA). This paper uses newly sourced transaction level trade data for Uganda, and a partial equilibrium simulation model to assess the trade and revenue implications of reductions in tariffs and improvements in trade facilitation under the AfCFTA for Uganda. The analysis reveals that Ugandan exports are already regionalised with exports to its major market, the East Africa Community (EAC), driven by a large number of firms, exporting many products at low values under high preference margins. While the AfCFTA opens up new export markets to Ugandan exporters, preference erosion in the EAC market exposes regional exporters to increased competition. Simulations indicate that the gains to Uganda from the AfCFTA rise dramatically with implementation of a trade facilitation agreement as covered in Annex 4 of the trade protocol.

Introduction

African economies, including Uganda, have embarked on an ambitious programme of regional integration in the form of the African Continental Free Trade Area (AfCFTA). This will be the largest trade agreement, by number of participating countries, since the formation of the World Trade Organisation. The agreement is also ambitious in terms of its scope and covers trade in goods, trade in services, investment, intellectual property rights and competition policy. Expectations are high, with estimates of potential gains of up to 3.5 percent of the continent's GDP, or U$100 billion a year, but only if tariff reductions are complemented by removal of nontariff barriers and improvements in trade facilitation (African Development Bank, 2019). The predicted increases in intra-African exports range from 14.6% if only bilateral tariffs are removed, to a high of 133% if these other complementary policy changes are implemented (African Development Bank, 2019). For Uganda, the World Bank (2020) model predicts that exports will rise by 0.8% with tariff reductions and 10.4% if non-tariff barriers are reduced and customs procedures are improved.

However, these aggregate numbers hide enormous variation in the potential impact across countries, and products and firms within countries. The sources of gains will also differ across trading partners. Free trade areas enhance national welfare through creating new opportunities for competitive trade (trade creation), but can also divert imports from efficient global producers to less efficient regional producers that receive preferential access (trade diversion). The extent to which trade creation and trade

[1] This project would not have been possible without the excellent support of Jakob Rauschendorfer from the International Growth Centre. Our appreciation also extends to the Commissioner of External Trade at the Ministry of Trade, Industry and Cooperatives of Uganda, Mr. Emmanuel Mutahunga, who provided the tariff offers for the AfCFTA and advised us on the sample of countries to focus on.

diversion effects dominate depends on the specifics regarding the trade partner, the proposed tariff phase down, the list of sensitive products, current trade flows and the stock of firms that are in a position to exploit new opportunities to export. To understand these dynamics and formulate relevant policy responses requires analysis using disaggregated product and firm level data.

This paper assesses the trade and revenue implications of the implementation of the AfCFTA for Uganda taking into account the heterogeneity in the anticipated impact across products and firms. To make the analysis tractable, we present a narrow analysis that focuses on reductions in tariff barriers to trade in goods between the EAC, the Southern African Customs Union, Nigeria and Ghana. The paper also considers the impact of improvements in customs procedures arising from the implementation of a trade facilitation agreement (Annex 4 of protocol on trade in goods). It does not deal with reductions in barriers to trade arising from nontariff barriers, sanitary and phytosanitary measures and technical regulations (Annexes 5 to 7). A particular emphasis of the paper is on opportunities to enhance Ugandan exports. Through this narrow analysis, the study not only aims to provide insights into a critical policy change taking place from the year 2021 but also to establish a framework that assists policy makers in considering the implications of the broader implementation of the AfCFTA for Uganda with additional trading partners as the implementation of the AfCFTA proceeds.

The analysis is structured in three parts. First, the paper presents a background analysis of the level and composition of Uganda's trade flows as well as the structure of tariff protection. A study of tariff barriers and preference margins in relation to existing exports and imports (bilaterally, to the region and the rest of the world) provides a first-run descriptive insight into potential product level responses in Ugandan exports and imports to the AfCFTA.

Second, transaction level trade data from 2011 to 2019 are used to present a firm level analysis of Ugandan exports. As is well established internationally, including for Uganda (see Fernandes et al. (2016)), export performance varies enormously across firms even within narrowly defined product categories. This analysis of the transaction data provides insight into exporter characteristics (value, number of products, destinations, dynamics of entry/exit, import status) and whether these characteristics differ for exporters to the EAC region, the broader region and the rest of the world. These insights can help tailor policies that target firm-level responses to the AfCFTA.

Finally, we conduct a partial equilibrium simulation of the trade impact for Uganda of the elimination of customs tariffs between the EAC, the Southern African Customs Union, Nigeria and Ghana. To do so, we draw upon the World Bank/UNCTAD designed SMART model that has been widely used to study the potential effects of free trade agreements. The advantage of this model is that it can be applied to highly disaggregated product level data (6-digit level data in this study) to simulate trade policy effects on trade creation and diversion, welfare and tariff revenues.[2]

We extend the model in an important dimension. A severe limitation of many (most) partial and general equilibrium analyses of the impact of trade liberalisation, is that statutory tariff rates are used to derive tariff reductions. However, statutory rates generally exceed the actual duties applied as exemptions on customs duties are frequently granted, as is the case in the EAC (de Melo and Regolo, 2014;

[2] The TRIST model, as applied to Uganda by Rauschendorfer (2020b) and de Melo and Regolo (2014), is based on transaction level customs data and is better suited to estimating the import and tariff revenue implications of trade policy. A study of the export effects of the AfCFTA on Uganda would require transaction data for all partner countries, which is unavailable. The SMART model draws on readily available country reported bilateral trade and tariff data and is thus better suited to an analysis of the impact of free trade agreements.

Rauschendorfer and Twum, 2020).[3] This can result in exaggerated estimates of the impact of the free trade agreement on trade flows and customs revenues. To resolve this limitation, we use applied tariffs at the detailed product level for Uganda, calculated using the transaction level data on imports and duties paid. An additional advantage of this approach is that we are able to calculate more realistic estimates of the impact of the trade agreement on government revenues as we also have information on other duties, such as the withholding tax, excise duties and VAT that are actually paid.

The AfCFTA and channels of impact

Regional integration schemes vary widely in scope and practice, with different configurations producing different results. The broad aim of the agreement establishing the AfCFTA is to "*create a single market for goods, services, facilitated by movement of persons in order to deepen the economic integration of the African continent*" (African Union, 2018: 4). This is to be achieved, first through the liberalisation of trade in goods and services, and then through the establishment of a Continental Customs Union at a later stage.

Unlike many earlier shallow Free Trade Areas (FTAs), the AfCFTA extends beyond just the liberalisation of trade in goods, and includes protocols that cover trade in goods, trade in services, rules and procedures on the settlement of disputes, investment, competition policy and intellectual property rights. These protocols themselves cover many issues, e.g., the protocol on trade in goods covers tariff concessions, rules of origin (see Box 1), trade facilitation, non-tariff barriers, technical barriers to trade, sanitary and phytosanitary measures and trade remedies.

The impact of this agreement is imminent: countries that deposited the ratification of the AfCFTA with the African Union, including Uganda, commenced Phase I reductions of their tariffs on goods from January 2021.[4] However, as of April 2022, trade under the agreement has not yet taken place as the process of concluding rules of origin has not yet been completed. Phase II negotiations of the agreement, which covers intellectual property rights, investment, and competition policy are under way.

[3] Within the EAC, duty remission schemes are used by members (including Uganda) to waive duties on Gazetted inputs imported by Gazetted users. For example, under EAC Gazette Notice No. 10 of 2020, Uganda was granted a remission of duty to apply a duty rate of 10% (as opposed to 25%) for one year on Unassembled floor, table and wall fans (HS 8414.51.00). Exemptions from tariff duties are also granted for imports for manufacturers under bond, for use by the United Nations, for embassies and diplomatic personnel, for machinery used for processing of agricultural and dairy products and for goods for incorporation in approved government projects.

[4] Only countries that have ratified, deposited their instruments of ratification and submitted their tariff offers will be able to start trading on the basis of agreed upon Rules of Origin and goods in the tariff offers. As of April 2022, 41 countries had deposited their instruments of ratification and rules of origin have been agreed on 87.7% of the total tariff lines. The outstanding rules of origin include key products in the automotive, textiles, sugar and tobacco sectors. Negotiations on the 5 priority services sectors (business, communications, finance, tourism and transport services) are still ongoing and are expected to be completed in June 2022, while other services sectors (construction, education, health and social, recreational and cultural, distribution, environment and other services) are also yet to be finalized [as of April 2022].

Box 1: Rules of origin

Rules of origin are important in any regional trade agreement, as they prevent tariff leakage through imports from non-preference countries being repackaged in a preference country and exported tariff-free. Rules of origin usually specify a minimum percentage of value added in the domestic market in order to qualify for tariff-free market access. However, if rules of origin are poorly designed, the compliance costs of certifying local content requirements can outweigh the benefits of tariff-free market access. For example, some retailers operating in Southern Africa opt to forego Southern African Development Community preferential tariffs because they deem the cost of administering rules of origin documentation too costly (Gillson & Charalambides, 2012). This clearly undermines the benefit of a free trade agreement.

Africa is characterized by a large number of countries, many of which are small in economic size, remote from international markets, and with low levels of industrialization. By removing barriers to intra-regional trade, the AfCFTA is seen as an important instrument to overcome these challenges and facilitate growth and development, through improvements in competitiveness, and the promotion of "*industrial development through diversification and regional value chain development, agricultural development and food security*" (African Union, 2018: 4). These outcomes are to be achieved through static gains arising from specialization and improved allocation of resources within and across countries, and dynamic gains linked to technological transfers, learning by exporting, economies of scale and improvements in efficiency.

However, as articulated in the Viner model of customs unions, trade agreements are not necessarily welfare improving. Change in trade and welfare arises from two main channels: *trade creation* and *trade diversion*. Analysing these in the context of the AfCFTA, the elimination of tariff barriers by Uganda on imports from the rest of Africa grants these countries preferential access into the Uganda market relative to countries outside of Africa. Imports from the partner countries rise as higher cost domestic production is replaced with lower cost imports from the partner country. This is termed *trade creation*. While domestic import-competing producers face increased competition, lower prices, reduced margins, and the government loses revenue on the partner imports, these losses are more than offset by the gains to consumers.

The elimination of tariffs on African partner countries also reduces the price of their goods relative to the price of imports from non-preference countries. Ugandan consumers and firms are expected to respond by shifting purchases of final goods and intermediate inputs away from the rest of the world towards their new African FTA partners. This is known as *trade diversion*. Trade diversion reduces national welfare in that the tariff preferences result in domestic consumers and firms switching imports from more efficient low-priced economies towards less efficient higher priced FTA partners. The tariff revenue lost by the state on this diverted trade is not fully compensated for by lower prices for the consumer, therefore reducing welfare. The net effect on welfare depends on the balance between trade creation and trade diversion. The less efficient the partner country, the smaller the trade creation effects and the larger the negative welfare effects of trade diversion. The larger the reductions in tariffs, and the lower the external tariff, the more likely that trade creation effects will dominate (Evans et al., 2006).

In assessing the effect of the AfCFTA on Uganda welfare and trade flows, two additional issues need to be considered. Firstly, while trade diversion reduces welfare from the importing country, from the exporter country's perspective the increased exports may assist the economy in establishing an industrial base. Further, by expanding regional supply capacity, particularly in intermediate products, trade agreements, even via trade

diversion, can assist in the development of regional value chains. Critical, however, in all such cases, is the dynamic evolution of the firm or industry to the competitive frontier. If increased intra-regional trade does not lead to the emergence of a competitive base, then the static costs of diversion accumulate over time, with regional exporters unable to access and compete in international competitive markets. This is a critical consideration for the AfCFTA, as even with the removal of barriers, the total market size of the African continent in terms of Gross Domestic Product (GDP) is small in global terms – less than that of France (AfDB, 2019: 106).

Secondly, Uganda is already a member of the EAC customs union with free mobility of goods and of the COMESA free trade area with free mobility of goods subject to rules of origin requirements. These agreements will have shaped Uganda's trade patterns through both trade creation and trade diversion channels. Tariff reductions under AfCFTA eliminate the preference margins granted to firms in the EAC and COMESA that led to a diversion of trade away from other African countries. From an import perspective, Uganda will re-divert trade away from the EAC and COMESA and back to its other African partners, thereby raising welfare. However, Uganda's exporters to the EAC and COMESA will face increased competition from other African firms in these markets. This diversion of trade from existing FTA partners differs from diversion of trade from the rest of the world in that it reflects a correction of the diversion effects arising from the EAC and COMESA FTA. de Melo and Regolo (2014) term this *trade correction*. Rather than reducing national welfare, trade correction in imports raises welfare. However, from an export perspective, trade correction may lead to a decline in Ugandan exports to the EAC and COMESA.

Country-level economic indicators

Vast differences in size and economic development across countries in the African continent pose a challenge to the implementation of the AfCFTA. While differences in economic structure and comparative advantage provide opportunities for welfare-enhancing trade (Evans et al., 2006), the adjustment costs to realise these gains may be high. This has been seen in Nigeria, for example, where policy makers, labour unions and civil society groups have raised concerns that opening up to trade will result in the demise of local industry thus impeding industrial development (Oguguo, 2019).

To illustrate some of the vast economic disparities across the African continent, Table 1 presents several macroeconomic indicators for Uganda, South Africa, Nigeria and Ghana in 2018. Looking at market size, as measured in terms of GDP (PPP, current international $), Nigeria (GDP of $1,034 billion) is more than 11 times larger than Uganda ($93 billion). South Africa, the most industrialised economy on the continent, has a GDP per capita (PPP, current international $) that is more than 6 times higher than Uganda ($14,209.1 vs. $2,175.8) and more than double that of Nigeria and Ghana. Annual GDP growth rates from 2011-2019 have been higher in Uganda (5.4%) and Ghana (6.7%) signalling some convergence in the size of their economies towards those of Nigeria (3.2%) and South Africa (a low 1.5%).

***Table 1**. Country Economic Indicators, 2018*

	Uganda	South Africa	Ghana	Nigeria
Population, total (million)	42.7	57.8	29.8	195.9
Land area (sq. km)	200520	1213090	227540	910770
GDP per capita, PPP (current international $)	2175.8	14209.1	5442.9	5278.8
GDP, PPP (current international $, billion)	93.0	821.2	162.0	1034.0
GDP average growth rate % (2011-2019)	5.4	1.5	6.7	3.2
Trade (% of GDP)	36.6	54.5	68.0	33.0
Trade Balance (% of GDP)	-6.5	0.5	-1.0	-2.0
Exports of goods and services (% of GDP)	15.1	27.5	33.5	15.5
Imports of goods and services (% of GDP)	21.6	27.0	34.5	17.5
Industry Structure				
Manufacturing, value added (% of GDP)	8.68	13.21	5.13	9.53
Agriculture, forestry, and fishing, value added (% of GDP)	24.25	2.37	20.19	20.86
Mining (% of GDP)	0.67	7.96	5.39	6.48
Services, value added (% of GDP)	63.05	78.47	57.77	70.62

Source: World Bank World Development Indicators (WDI) for aggregate indicators. Data on industry structure is obtained from Groningen Africa Database and is for 2015.
Notes: Trade is calculated as exports + imports, Trade Balance is calculated as export – imports.

Wide disparities are also evident in the degree to which these economies are open to trade, as measured by the ratio of exports plus imports to GDP. South Africa (54.5%) and Ghana (68%) have higher shares of trade to GDP, compared to Uganda (36.6%) and Nigeria (33%). In 2018, Uganda ran a large trade deficit (6.5% of GDP) compared to Ghana (1%) and Nigeria (2%), while South Africa ran a small trade surplus (0.5%). The deficit for Uganda arises from a combination of relatively high imports and low exports. Uganda's exports of goods and services as a share of GDP in 2018 was 15.1%, which is much lower than the equivalent indicator for Ghana (33.5%) and South Africa (27.5%).

Looking at industry structure, there are also considerable divergences across African countries in the degree to which they have industrialised. Within the sample of countries presented in Table 1, South Africa has a well-established broad industrial base with manufacturing contributing 13.21% of value added compared to 9.53% in Nigeria, 8.68% in Uganda and 5.13% in Ghana. Looking deeper within manufacturing, South Africa also established supply capacity across a wide range of manufacturing industries covering production of final and intermediate goods. In addition, South Africa has a competitive services industry, which makes up 78.47% of the country's GDP. For the other economies, agriculture is more important, contributing in excess of 20% of value-added.

These vast differences in economic indicators and industry share structure have important implications for the outcomes of regional integration. While the opening up of the regional market provides scope for manufacturing firms to export, expand production and realise economies of scale, increased competition from South African manufacturing firms may crowd out local industries in partner countries. Further, a strong services sector enhances the competitiveness and export of manufacturing goods (WTO, 2019), providing South Africa with an additional source of competitive advantage in the region.

Differences in industry structure also have implications for the gains from regional integration. From a trade theory perspective, the greater the degree of similarity in industry structures between countries in the region, the greater the scope for substitution in production and therefore trade creation (Evans, 2006). However, the disruption

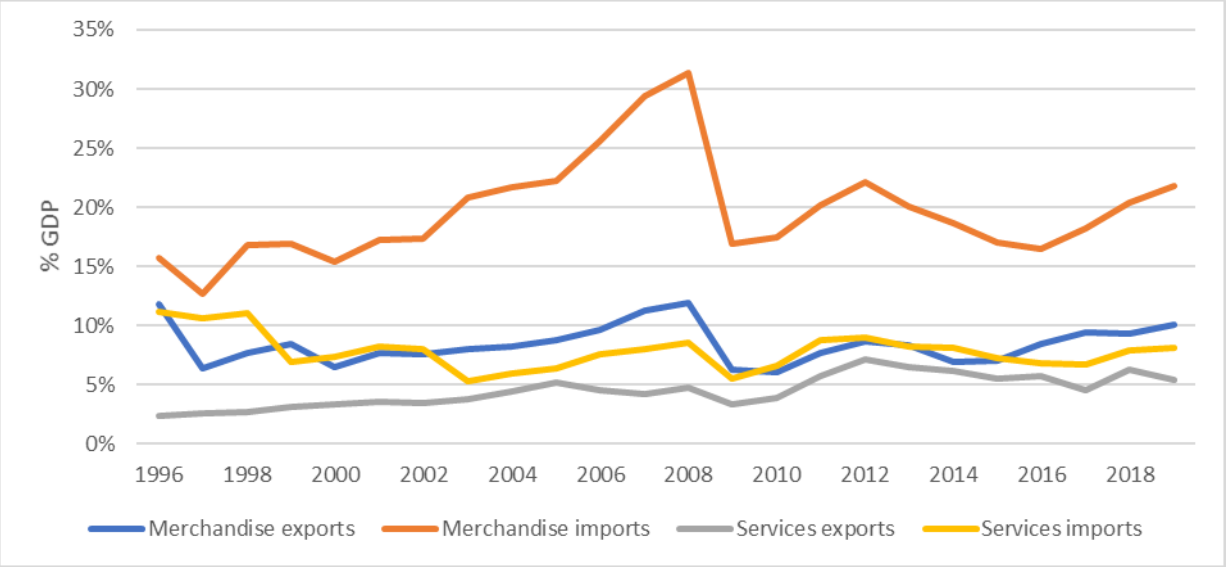
resulting from increased competition in the market may be perceived by policymakers as too high, particularly if the industrial development goals of the economy are threatened (Development Network Africa (DNA), 2007). The consequence of this situation may be the reversal of tariff reduction, the failure to fully implement tariff reductions and/or the imposition of other barriers to regional trade. The potential for such a situation to arise is exemplified by the current conflicts around intra-EAC trade in sugar and milk products.[5] In these circumstances, a complementary industry structure, where there is limited overlap in industries (or exports) will be less disruptive allowing firms from each country to expand sales into the region.

Overview of trade and tariff structures

Aggregate and regional trade

Figure 1 presents the exports and imports of goods and services as a share of GDP for Uganda over the period 1994 to 2018. Looking over the past 25 years, Uganda has failed to materially improve its aggregate trade performance. While the total value of goods exports grew in nominal terms from $0.5 billion in 1994 to $4.1 billion in 2020, merchandise exports as a share of GDP at 11% in 2018 were no higher than they were in the early 1990s.[6] The share of exports of goods in GDP, therefore, remains substantially below other large African economies – both South Africa and Ghana have export-to-GDP ratios of around 25%, and Nigerian exports of goods account for 15% of its GDP. Similarly, while imports were 6 percentage points higher in 2018 than in 1996, they were still not as high as they were during the early 2000s. Where Uganda has made significant progress is in boosting services exports (chiefly tourism, but also transport services). Balance of payments data show that Uganda's exports of services approximately doubled as a share of GDP from around 3% in 2000 to 6% in 2018 (Figure 1).

Figure 1. Exports and Imports as a share (%) of GDP for Uganda



Source: Own calculations using the WITS, UNCOMTRADE data, and GDP data from World Development Indicators. Note that Uganda revised its GDP upwards in 2009, which accounts for 50-60% of the collapse in the trade to GDP ratios in that year.

[5] https://www.monitor.co.ug/uganda/business/prosper/what-is-the-end-game-of-uganda-kenya-trade-war--3222118

[6] Although GDP growth grew strongly over this period too, implying similar growth in export values. An alternative indicator, the value of exports per population, shows strong increases rising from 13 US$ per capita in 1997 to 80 US$ in 2019 (own calculation using World Development Indicator data for population and Bank of Uganda for export values).

Turning to the regional trade composition of Uganda, Table 2 presents data on the value and regional composition of Uganda's exports and imports of goods in 2000 and 2018. Trade is aggregated to the following regional groupings: EAC, SACU, Rest of COMESA, Nigeria, Ghana, rest of Africa and rest of the world.

Overall, trade increased substantially for Uganda from 2000 to 2018. Exports rose from US$403 million to US$3.1 billion over the period, equivalent to a compound annual growth rate of 12%. Imports grew similarly fast, from US$953 million to US$6.7 billion (a 11.5% compound annual growth rate). Looking at the regional composition of trade, Uganda's exports are already highly regionalized, with Africa making up 52% of the total value of goods exports in 2018, up from 31% in 2000. Within this group, much of Uganda's exports are concentrated within the EAC (41% of total exports in 2018) and rest of COMESA (7.9%) where FTAs already exist.[7] The share of Uganda's exports to other African countries such as SACU (largely South Africa), Nigeria and Ghana is much lower, jointly making up less than 2% of total export value.

These low export flows with African countries outside of the EAC and COMESA provide motivation for the removal of tariff barriers to intra-African trade, such as would be anticipated under the AfCFTA. But the high share of exports already destined for the continent also reflects a reduced scope to further expand exports into the region and potential limitations of the agreement in assisting Uganda to diversify exports into international markets.

Table 2. Uganda's exports and imports of goods by destination

	Total (US$, million)		**Annual Growth rate (%)**	**Share (%)**	
Country Groupings	2000	2018	**2000-2018**	2000	2018
Exports					
Rest of World	276.9	1486.3	9.8	68.7	48.2
Africa	126.0	1600.2	15.2	31.3	51.8
EAC	79.3	1254.5	16.6	19.7	40.6
SACU	30.6	9.8	-6.1	7.6	0.3
Nigeria	0.1	2.8	20.1	0.0	0.1
Ghana	0.0	3.9		0.0	0.1
Rest of COMESA	12.9	243.9	17.7	3.2	7.9
Total	402.8	3086.6	12.0	100.0	100.0
Imports					
Rest of World	564.2	5327.8	13.3	59.2	79.3
Africa	388.5	1388.3	7.3	40.8	20.7
EAC	305.3	796.3	5.5	32.0	11.9
SACU	70.9	335.0	9.0	7.4	5.0
Nigeria	0.2	0.6	6.4	0.0	0.0
Ghana	0.0	3.4	31.4	0.0	0.1
Rest of COMESA	10.4	160.2	16.4	1.1	2.4
Total	952.7	6716.0	11.5	100.0	100.0

Source: Own calculations using Uganda reported gross trade values from UNComtrade. 'Rest of COMESA' refers to trade with COMESA countries that are not also members of the EAC and SACU.

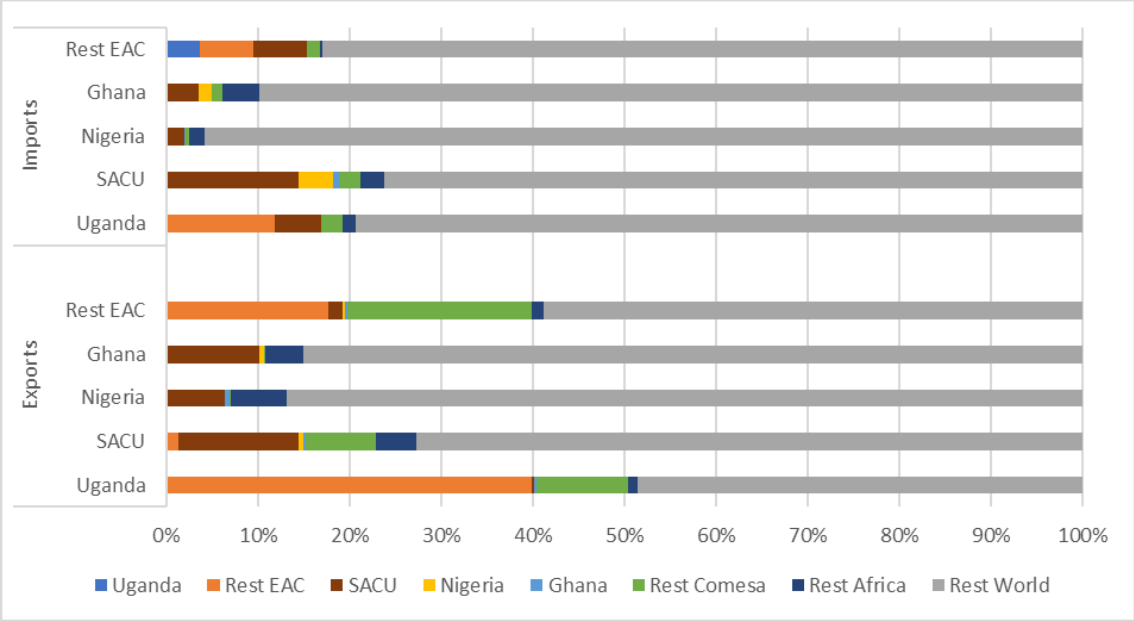
Turning to the regional composition of imports, Table 2 indicates a considerably lower share of goods sourced from the African market than for exports. Uganda imports 79.3%

[7] de Melo and Tsikata (2014) show that trade intensity indices for the EAC, calculated as the ratio of the bloc's share in member exports to its share in nonmember exports, rose from 200 in the period 1997–98 before the establishment of the EAC to 279 in the period 2003–04 after its establishment (with the free trade agreement implemented in January 2001). This reveals that not only was EAC trade already regionalized before 2003, but that this has increased subsequently to the formation of the EAC. However, de Melo and Tsikata (2014) also show a decline in the extra-bloc trade intensity suggesting that trade diversion was in part responsible for the increase.

of its total imports from outside Africa (rest of the world) in 2018, with the Africa import share constituting only 20.7%. However, as shown in Figure 2 which presents the composition of imports by region for selected countries, Africa's share in Ugandan imports still exceeds share of imports from Africa in the rest of EAC (17%), Ghana (10%) and Nigeria (4%). The share of SACU imports sourced from Africa (including from within SACU members) is 23%, but this falls to 9% once intra-SACU trade is excluded. Consequently, even when looking at imports, Uganda trade is regionalized, at least when compared with many other African countries.

Looking across regions and countries within Africa in Table 2, the EAC again dominates accounting for 11.9% of total imports. Interestingly, Uganda's trade position with respect to EAC shifted from a deficit to a surplus over the 2000-2018 period. SACU makes up 5% of total import value for Uganda, reflecting the role of South Africa as a large supplier of manufactured goods into the region. Further, the high value of imports from SACU relative to exports mimics the general pattern of South African trade with the region, where its exports far exceed the value of its imports.

Figure 2: Source of total trade in goods, 2018



Source: Own calculations using country reported trade from UNCOMTRADE.

Composition of trade

While the aggregate trade values provide insight into the degree to which countries are integrated through trade, to assess the potential for expansion of trade it is also useful to analyse the product composition and concentration of these trade flows. Such an analysis is informative in identifying the likelihood that emerging flows will be driven by trade creation or trade diversion.

To provide further insight, Figure 3 plots a treemap of Uganda's non-gold exports in 1995 and 2018.[8] Uganda has made considerable progress in diversifying its export bundle (see also Shepherd, 2016). In 1995, food products such as coffee, fish fillets, corn, dried legumes and unmanufactured tobacco dominated exports of goods, with coffee alone accounting for 64% of the total value of non-gold exports (Figure 3). By 2018, the share of coffee had shrunk to 9.4%, with other agriculture products, such as processed fish, milk, cocoa, sorghum and sugar becoming important export products. Non-food exports also rose in prominence, including metals (iron sheets, tubes, pipes and bars) and

[8] Gold exports rose dramatically as a share of total exports, reaching 17% in 2018.

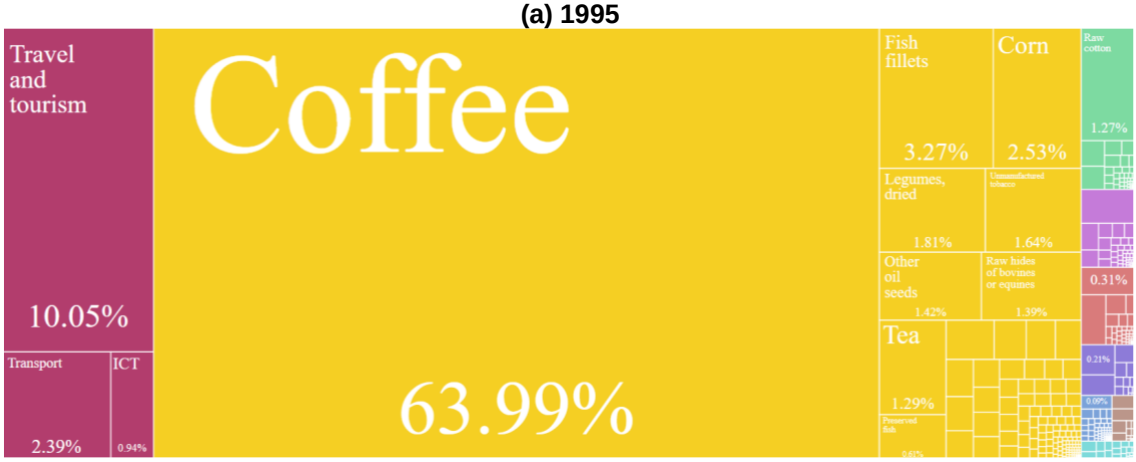
chemicals (soap, medicaments, hair products, make-up preparations). Further, the composition of Uganda's export basket between goods and services changed considerably during this period, with services growing from 13% of total exports in 1995 to 45% in 2018. The bulk of services exports comprise of travel and tourism services, but information, communication and technology (ICT) services have grown rapidly in share in recent years and now exceed the share of coffee in aggregate exports (12.2%).

For additional product-level insight into the concentration and composition of exports and how this varies across destinations, Table A1, in Appendix A, presents Uganda's top 10 export products and their export share to the EAC, SACU, Nigeria, Ghana and the rest of the world. In 2018, Uganda exported a total of 2,322 HS 6-digit products. The range of products exported is highest for the EAC (1,982), corroborating the earlier finding that exports are highly regionalized. Less than 39 products are exported to Ghana and Nigeria, and only 138 are exported to SACU.

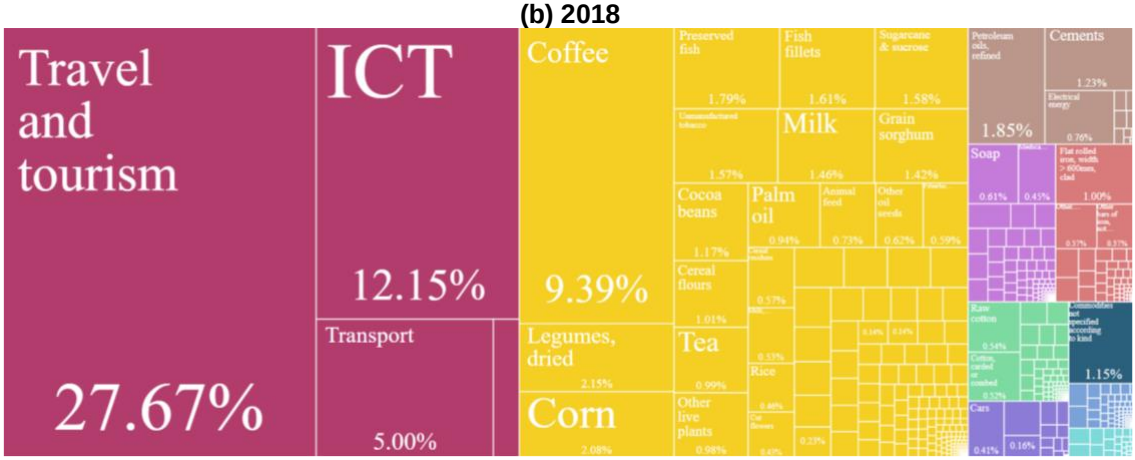
Not only are few products exported to Ghana, Nigeria and SACU, but these exports are also highly concentrated with the top 10 products making up 77% of exports to SACU and Ghana, and a high 94.4% to Nigeria. Coffee alone accounts for over half of Ugandan exports to South Africa. In contrast, Ugandan exports to EAC region are far more diversified with the top 10 products comprising only 44.7% of export value. The exports to the EAC are also more evenly distributed within these top 10 products as compared to exports to other regions. Looking at the product descriptions, it is noticeable that, with the exception of coffee, cocoa and tobacco, there is limited overlap in the top exports across regions.

Figure 3: Composition of Ugandan non-gold exports, 1995 and 2018

(a) 1995



(b) 2018



Source: Atlas of Economic Complexity Data. Gross trade, measured at HS4-digit level. The value of non-gold exports in 1995 is $777 million and for 2018 is $4.37 billion.

Total imports are mainly comprised of minerals (petroleum products), chemicals, and plastic products - together these products make up 40% of total imports. This is followed by animal and vegetable products, transport equipment, mechanical and electrical machinery and base metals (iron & steel products), each making up an additional 8-9% of the total import value. A key consideration in assessing the welfare and revenue impacts of the AfCFTA is the degree of similarity in the import structure across regions. For example, the greater the similarity in the product composition of imports by Uganda from the rest of the world to that of Nigeria, Ghana, SACU and the rest of Africa, the higher the likelihood that the AfCFTA will result in trade diversion. The more similar is the structure of imports to that of the EAC and COMESA, the greater the likelihood of trade correction.

Table A2 in Appendix A presents Uganda's top 10 imported products and their import shares from the EAC, SACU, Nigeria, Ghana and the rest of the world. In total, Uganda imported 4125 HS6-digit products in 2018. As expected, a high proportion of this set of products is imported from outside of Africa (3,946), but what is interesting is the wide range of products imported from the EAC (2,120) and SACU (1,998). Far fewer products are imported from the other countries in Africa. For example, only 62 products were imported by Uganda from Ghana in 2018.

There are some key differences in the composition of imports across regions. Imports from Africa differ from the rest of the world in that there is a higher concentration of precious metals (gold) and base metals (iron & steel products). Looking across the individual African countries and regions, imports from the EAC are more diversified than imports from SACU (chemicals, base metals, transport equipment), Nigeria (clothing & textiles, machinery) and Ghana (gold).

The data in Table A2 reveals that Ugandan imports are concentrated, but the degree of concentration differs by region. For imports from Ghana, the top 10 product share is 92%, with gold imports alone making up 84% of the value of Uganda's imports from the country. For imports from SACU and Nigeria, the top 10 product share is between 56% and 59%. Imports from the EAC and the rest of the world are more diversified, with the top 10 products accounting for 40% of the value of imports from these countries and regions.

The high concentration of imports with limited overlap between products imported from the AfCFTA partners and the rest of the world diminishes the potential for severe trade diversion. Nevertheless, there is some overlap in the importation of vehicles and iron and steel products between SACU, EAC and the rest of the world. While tariffs on iron and steel products are low, those on vehicles are high at 25%. The AfCFTA could therefore give rise to a welfare reducing diversion of vehicle imports from the rest of the world to SACU, but a welfare enhancing diversion, or correction, of trade from the EAC to SACU.

Tariff barriers to intra-Africa trade

This sub-section looks more closely at tariff barriers imposed by Uganda on imports from other countries, as well as tariffs applied by other African countries on Uganda's exports.[9] First, we present a general comparison of the applied statutory tariff schedules in the EAC, SACU and ECOWAS (Ghana and Nigeria) focusing on the similarity and differences in the level and structure of protection across products. Vast differences in the level and structure of tariffs portend potentially large disruptive trade effects arising from the implementation of the AfCFTA. Further, similar tariff structures reduce the need for stringent and complex rules of origin that are used to prevent the re-routing of trade through countries with lower external barriers.

[9] Non-tariff barriers, which are found to be very high for African countries (World Bank, 2020), are not covered, although the Annex 5 of the AfCFTA deals specifically with their removal.

A more detailed analysis of tariffs imposed by Uganda on its imports, and by the partner countries on Uganda's exports is then presented. The effect of the AfCFTA on Uganda's bilateral trade flows will depend not only on the product composition of existing trade flows, but also on the degree to which tariff and other barriers constrain this trade (and potentially new trade). Theory predicts that the gains from regional integration will be greater when the existing tariff barriers to regional trade are high and external barriers to trade are low. The higher intra-regional barriers are, the greater the gains from trade creation will be. The lower the external barriers are, the lower the likelihood that the free trade agreement will result in trade diversion.

A comparison of tariff structures

Table 3 summarizes the statutory Most Favoured Nation rates for Ghana, Nigeria, SACU and the EAC. Given the widespread use of Stays of Application (SoA) – approved deviations from the common external tariff – by EAC members (Frazer and Rauschendorfer, 2019; Rauschendorfer and Twum, 2020), the table also summarizes the tariff rates, inclusive of Stays of Application duties, that apply to Uganda.[10] Several insights can be obtained from the table.

Firstly, the simple average tariff rates are similar across the countries, ranging from 12 to 13.3%, with the exception of South Africa where the average MFN rate is 8.4%. The low average rate for SACU is largely driven by the high proportion (54%) of duty-free tariff lines. These average rates place these countries close to the range of tariffs applied by least developing countries (11.4%), Sub-Saharan Africa countries (11.7%) and low- and middle-income countries (9.6%).[11]

Secondly, the complexity of the tariff structures differs widely across the countries. Compared to the other countries, the SACU tariff structure is more complex comprising more tariff lines (8,084 compared to fewer than 6129), more tariff bands (107 compared to 5-8), a higher proportion of non-ad valorem lines (3.9% compared to 0-0.3%), more nuisance tariffs (1.4% of lines) and higher variation, as measured by the standard deviation of tariffs over the mean value of tariffs (known as coefficient of variation). The maximum tariff rate, however, is highest in the EAC at 100%, reflecting high tariff rates on the list of sensitive products.[12]

Thirdly, the statutory common external tariff rates for EAC and ECOWAS do not fully reflect the applied tariff by countries within the regional groupings. With the Stays of Application granted to Uganda, 203 of its tariff lines have rates in excess of those of the EAC CET, while 38 lines have lower tariffs. The Stays of Application raise the simple average tariff to 13.3% (vs. 13% for EAC CET), but the weighted average tariff actually falls from 11.4% to 11%, reflecting the relatively large value of imports on products receiving reduced protection.

In the case of ECOWAS, the transition rules of the agreement allowed members to deviate from the CET in the form of an Import Adjustment Tax or a Supplementary Protection Tax, although the use of these measures is limited to a maximum of three percent of all tariff lines (ECOWAS, 2016; WTO, 2017).[13] The transition period ended on 1 January 2020, so these deviations are no longer relevant. However, Nigeria went

[10] Firm and product specific exemptions of tariff duties through the EAC Duty Remission Scheme are also provided.
[11] Based on TRAINS data for 2018.
[12] Note that SACU applies several non-ad valorem rates that include specific tariffs (e.g. 5c/kg) and mixed tariffs (e.g. 60% or 2 500c/kg). Unit values at the tariff line level for South Africa obtained from TradeMap are used to calculate ad valorem equivalents for the specific tariffs. Ad valorem rates could only be calculated for 179 of the 219 product lines with specific tariffs. The maximum rate for SACU may therefore by higher than 82%.
[13] In 2017, Nigeria applied import adjustment taxes on 97 10-digit tariff lines (average tariff of 27% with a range from 5% to 60%). The country did not apply a supplementary protection tax (WTO, 2017).

beyond these measures and implemented a “national list” in which certain manufactured products were more highly protected than under the CET, and an “import prohibition list” from which imported products from other ECOWAS countries are exempted (Oyejide, 2016). This import prohibition list includes a wide range of items such as frozen poultry, pork, beef, refined vegetable oils, spaghetti, bagged cement, several medicaments (e.g., paracetamol tablets, chloroquine tablets,…), soaps and detergents, ball point pens, amongst others.[14] Finally, Nigeria imposes foreign exchange restrictions on the importation of 41 listed goods and services (e.g., rice, cement, Indian incense, roofing sheets, toothpicks, wooden doors, tomatoes, etc.) (WTO, 2017). These import prohibitions are not taken into account in the tariff schedule data presented in Table 3.

Table 3: Structure of tariffs applied by EAC and others

	Ghana	Nigeria	SACU	EAC CET	CET (incl. Uganda SoA)
Complexity					
Number of tariff lines	6129	6129	8084	5,684	5,684
Number of bands (incl. specific)	5	5	107	8	8
Number of ad valorem bands	5	5	67	7	7
Duty free lines (% total)	2.9	2.9	54.2	37.5	37.8
Non-ad valorem lines (% total)	0	0	3.9	0.3	0.3
Average rates					
Simple average	12.0	12.0	8.4	13.0	13.3
Weighted average	11.2	8.2	7.5	11.4	11.0
Maximum rate	35	35	82	100	100
Minimum rate	0	0	0	0	0
Dispersion indicators					
International spikes (>15%) (% lines)	38.3	38.3	23.0	1.1	4.5
Nuisance (0<t<2%) (% lines)	0	0.0	1.4	0	0
Coefficient of variation	0.63	0.63	1.38	0.95	0.97

Source: SACU rates as published in January 2021 are obtained from the South African Revenue Services. Ad valorem equivalent tariff rates are calculated for specific duties using unit values obtained from TradeMap. For mixed tariffs (e.g. 60% or 2 500c/kg), the ad valorem component is used. The 2019 Economic Community of West African States (ECOWAS) tariff schedule at the 10-digit level is used for Ghana and Nigeria, as obtained from TRAINS. The 2018/19 common external tariff (CET) at the 8-digit level is used for EAC. To obtain the tariff schedule for Uganda, the EAC CET is updated to account for Stay of Applications applicable to Uganda that are obtained from Rauschendorfer and Twum (2020).
Notes: South Africa average rates and other indicators exclude 40 specific tariffs for which ad valorem equivalents could not be calculated. Weighted average values use 2018 total imports reported by each country as weights. Tariff line level import data are obtained from TradeMap. The simple average rate covers all tariff lines, including those without imports. The Rauschendorfer and Twum (2020) data was updated to include 45 missing tariff lines that were included in the AfCFTA Schedule A Schedule of Tariff Concessions submitted by the Uganda authorities. The coefficient of variation is calculated as the standard deviation divided by the mean tariff.

To further compare the similarity in tariff structures, the statutory MFN rates are aggregated to a common 6-digit level of the Harmonized System (Revision 2017). The data further reveal considerable differences in the structure of tariff protection across products. The simple pairwise correlation of weighted average tariff rates is very low across all country pairs, equalling 0.46 between Uganda and SACU, 0.48 between SACU and Nigeria/Ghana and 0.6 between Uganda and Nigeria/Ghana (see Table B1 in Appendix B). The average absolute value of the difference in tariff rates between Uganda and SACU is 7.6 percentage points (rises to 13 percentage points if common

[14] See the list provided on https://customs.gov.ng/?page_id=3075.

zero bands are excluded), while it is 6.72 percentage points between Uganda and Nigeria/Ghana.

The differences in the Uganda tariff structure and that of SACU and Nigeria/Ghana is further illustrated in the scatter plots of Figure B1 in Appendix B. These also show several of Uganda's large import items for which its external tariffs exceed those of the SACU, Nigeria and Ghana. Such large differences in tariff structures complicate the implementation of the AfCFTA. To the extent that existing tariffs reveal political economy pressures for protection and domestic policy objectives, these differences imply potentially large disruptive trade effects arising from reductions to barriers to regional trade. This can give rise to protectionist pressure for the imposition of stringent rules of origin requirements to prevent trade deflection - the re-routing of external trade through FTA partner countries with the lowest external barrier, and thus undermine growth in intra-regional trade. Such pressure is evident in the Southern African Development Community (SADC) FTA, where pressure by South African firms led to the imposition of stringent and complex rules of origin requirements that have inhibited utilisation of the preferences into the SACU market by SADC partner firms (Brenton et al., 2005).[15] Finally, vastly different tariff structures across countries/regional groupings pose a challenge to the long-run AfCFTA objective of forming a continent-wide customs union as the implementation of a common external tariff will require considerable adjustments to existing tariff schedules.

Uganda tariffs on imports

To further analyse the potential implications of the AfCFTA on trade flows, this section presents a more detailed analysis of tariffs imposed by Uganda on its imports. Two particular considerations are relevant to assessing the impact - first, the level of protection imposed on partner country imports, and second, the degree of preferential market access granted to the EAC and COMESA. The latter is relevant as it provides some insight into how prior trade agreements have affected the composition of Uganda's trade, as well as how tariff reductions on imports from other African countries may result in a diversion of trade, or trade correction, from the EAC and COMESA towards the new partners.

To analyse the level of tariff protection, disaggregated import data and tariff rates at the HS 6-digit level are obtained from TRAINS. The data are for 2018 with exception of Nigeria where the most recent data available is for 2016. For Uganda, the TRAINS data are supplemented with the statutory tariff rates (aggregated to HS 6-digit level using import values as weights), the Stays of Application (SoA) obtained from Rauschendorfer and Twum (2020) and collection rates calculated from transaction level data sourced from the Uganda Revenue Authorities.

Table 4 presents several measures of the average tariff protection on imports by Uganda from different regions and countries. These tariff rates only cover products actually traded in 2018 and therefore differ from those in Table 3 that cover all products. The measured degree of tariff protection is highly dependent on the tariff indicator used. The weighted average applied statutory rate, using the EAC CET is 8.4% but this falls to 7.7% once Uganda's Stays of Application are included.[16] If collection rates are used, the

[15] See also de Melo and Portugal-Perez (2013) who show how the single-transformation rule for apparel exports granted to developing countries under the United States Africa Growth and Opportunity Act contributed to an increase in export volume of about 168 percent for the top seven beneficiaries or approximately four times as much as the 44 percent growth effect from the initial preference access without the single transformation.

[16] Import weighted average tariffs tend to under-estimate the true level of protection as high tariffs deter imports of these goods. Highly protected goods are therefore under-weighted when import weighted average tariff rates are calculated. Regressions of log imports against the log of 1+applied tariff for Uganda reveal a tariff elasticity of between -5 and -6.

average tariff falls further to 5.1%.[17] The lower collection rates reflect the many duty exemptions granted on imports (Rauschendorfer, 2020b).

Looking across countries, zero duties are applied on imports from the EAC. Zero duties are also applied to imports from the COMESA FTA members (with 20% of the statutory rate applied to imports from Eritrea and 90% of the statutory rate on imports from Ethiopia), but these goods need to meet the rules of origin requirements. As shown by the transaction data, not all goods imported from COMESA enter under the preferential rate. The average collection rate for imports from COMESA is 3.6% and arises from a combination of tariffs imposed on imports from COMESA members that are not part of the FTA (Somalia, Tunisia, Ethiopia and Eritrea), and imported goods that do not meet the rules of origin requirements. Tariffs on imports from the remaining regions and countries are on average 11.2% for SACU, 14.2% for Nigeria, 24.6% for Ghana, 28.3% for the rest of Africa and 8.5% for the rest of the world. These differences reflect variation in the composition of imports from these regions, not different product-level tariff rates. The collection rates are substantially lower than the statutory rates, particularly for Ghana and the rest of Africa where collection rates are below 1% (compared to average statutory rates above 24%). The collection rate on imports from SACU at 5.1% is less than half the statutory rate of 11.2%.

The relatively high statutory tariffs imposed on imports from Africa, outside of the EAC and COMESA, suggest potentially large trade creation gains in imports by Uganda from Africa through the AfCFTA. The impact on aggregate imports, however, will be diminished by the relatively low share of total imports accounted for by these new FTA partner countries. For example, assuming an average import demand elasticity of 1.7 estimated by Kee et al. (2008), the removal of tariffs on imports from Nigeria, Ghana and SACU would raise total imports from these countries by US$ 76 million, or 22.5% of the initial value. However, total imports will only increase by 1.15% (imports from Africa by 5.54%). If collection rates are used, imports are predicted to rise by a lower US$ 27.2 million, which is equivalent to only 0.42% of total imports (2% of imports from Africa). The impact will of course vary across products and is dependent on the specified import elasticity. The simulations presented later explore these issues in more depth.

[17] Collection rates at the HS6-digit product level are calculated, using the transaction level data cleaned for outliers, as the sum of tariff duties collected over the import value (cif). These rates are then merged with the HS6 digit level import data obtained from TRAINS. When using the transaction data alone, the aggregate collection rate is calculated as 4.4%. Using transaction data for the 2015/2016 fiscal year, Rauschendorfer (2020b) calculates a weighted average statutory rate of 5.7% and a collection rate of 4.3% for Uganda, which are similar to the 5.9% and 3.3% rates for 2011 calculated by de Melo and Regolo (2014). We need to nevertheless be cautious about using the collection rates as the 'true' level of tariff protection imposed by the country. Collection rates are biased downwards by duty-free imports used in export production, as well as imports that do not enter the market as they are used for private or institution-specific consumption (e.g. the United Nations, embassies, the government). Further, firms granted exemptions under the Duty Remission Scheme, may not pass the lower tariff to downstream users, but price these products for sale in the domestic market at the external tariff inclusive price.

Table 4: Average tariff applied by Uganda on imports, 2018

		Statutory rates				Transaction data
		Simple average	Weighted average	Weighted average incl. SoA	Share import value	Collection rate
Exporter	Rest EAC	0.0	0.0	0.0	11.82	0.4
	SACU	15.2	11.2	11.2	5.04	5.1
	Nigeria	17.7	14.0	14.2	0.01	13.5
	Ghana	17.2	24.6	24.6	0.05	0.9
	Rest COMESA	2.8	0.0	0.0	2.38	3.6
	Rest Africa	16.6	28.3	28.3	1.40	0.5
	Rest World	13.6	9.4	8.5	79.30	6.0
	World	12.3	8.4	7.7	100.00	5.1
	World excl. EAC & Comesa	13.8	9.8	9.0		5.8
	EAC preference margin[1]	15.0	21.6	22.8		12.3

Source: Own calculations using data obtained from TRAINS, UNComtrade, Trade Map, Rauschendorfer and Twum (2020) and transaction data from the Uganda Revenue Authorities. Notes: Tariffs are weighted by import values. The weighted average tariff therefore reflects a combination of tariff rates and products imported. Tariff data are for 2018, with the exception of Nigeria which uses 2016 data. Trade data are also for 2018 with the exception of Nigeria (2016) and Tanzania (2017). Ad valorem equivalents of specific tariffs using the UNCTAD method are included for SACU. Note that the small positive statutory tariff for COMESA reflects the tariffs on Eritrea (20% of MFN rate), Ethiopia (90% of MFN rate) and COMESA members that are not part of the FTA in 2018 (Somalia, Tunisia). There is also a small positive collection rate on imports from the EAC, but this possibly arises due to misclassifications of the country of origin in the data, goods transiting through the EAC to Uganda, or imports of products exceeding internal EAC quota levels.

[1] Preference margins on imports from COMESA are 24.6% when using statutory MFN rates inclusive of SoA, and 10.9% when using collection rates.

A further consideration is the relationship between tariff protection and imports from the EAC and COMESA. The implementation of these agreements will have increased trade through trade creation effects, but will also have led to the diversion of imports from other African countries and the rest of the world. The implementation of the AfCFTA will offset the diversion effects from other African countries and is thus termed *trade correction*, as in de Melo and Regolo (2014).

The final row of Table 4 presents the preference margin under the CET granted to EAC exporters in the Uganda market. Preference margins are calculated as the difference between the preferential tariff and the MFN tariff for each product imported from the EAC. According to the statutory MFN rates inclusive of SoA, EAC exporters benefit, on average, from a 22.8% preference margin in the Ugandan market. Using the average collection rates applied on non-preference originating countries, the preference margin is lower at 12.3%. In both cases, the preference margins far exceed the weighted average tariff applied on imports from non-FTA countries (9% using statutory rates and 5.8% using collection rates). Several insights can be drawn from these results.

Firstly, the composition of Uganda imports from the EAC is biased towards products that face relatively high external tariff rates. This composition will be driven by a combination of two effects. The reduction of tariffs on imports from EAC will have induced relatively strong increases in imports of highly protected products from the EAC via trade creation effects. Further, the diversion of Ugandan imports from the rest of the world to the EAC will also have been stronger amongst products facing relatively high external tariffs. The simulation model presented later will be used to unpack the relative contribution of each of these effects. Nevertheless, the data at this stage suggest potentially large trade effects associated with the implementation of the EAC trade agreements.

Secondly, when disaggregating the analysis to the HS 2-digit level, the results show that the composition of imports from the EAC tends to be biased towards relatively protected products across most (65 out of 96) of the product categories. This reflects the broad-based influence of the EAC customs union on Uganda imports from the region.

Thirdly, the Stays of Application on average reduce protection against imports from the rest of the world, reflecting a policy to lower the cost of accessing these goods by the authorities. In contrast, the SoA have the effect of raising the statutory preference margins granted to imports from the EAC (21.6% to 22.8%). SoA that raise tariffs above the CET are therefore concentrated on products that Uganda imports from the rest of the EAC. The implication is that SoA that are implemented to provide additional protection to domestic producers also have the impact of raising the competitive position of EAC exports in the Ugandan market.[18] The desired positive impact of the SoA on domestic producers may be partially undermined by increased imports sourced from EAC partners.

Fourthly, high external tariffs and preference margins on intermediate inputs raise production costs within Uganda. Table B2 in Appendix B presents average tariffs and preference margins on EAC imports according to the Broad Economic Categories (BEC) categorization of goods into capital goods, intermediate goods, and consumption goods. This categorization overlaps with the EAC CET three band structure for finished goods (25%), intermediate goods (10%) and raw materials/capital goods (0%), although there are important differences. Shepherd et al. (2017), for example, argue that the CET misclassifies goods based on assumed final uses, resulting in tariffs remaining higher than the CET scheme intended.

While imports of intermediate inputs from non-preference countries face an average statutory tariff of 6.2% (3.8% external collection rate), those intermediate inputs sourced from the EAC face a high external statutory tariff of 20.8% (7.8% external collection rate). Similarly, imports of capital goods from non-preference countries face an average tariff of 4.1%, but for those capital goods imported from the EAC, the external tariff is a high 10.5%. To the extent that the BEC classification appropriately defines intermediate inputs and capital goods, these results suggest that the 3-band CET of the EAC tends to provide high levels of protection to producers of these goods within the region, with the potential adverse consequence of raising firm production costs. One question is whether the AfCFTA will be effective in diminishing these costs to firms by providing alternative access to these products.

Tariffs on Ugandan exports

We now look at tariff protection from the perspective of Ugandan exports to Africa and the selected FTA partners. Table 5 presents the simple and weighted average statutory tariffs facing products Uganda exports to African countries and regions.

While the simple average statutory tariff faced by Ugandan exporters ranges from 10.5% (SACU) to 12.7% (Ghana), the weighted average tariffs are substantially lower (1.6% to 5.3%) reflecting the concentration of Uganda's exports in products facing low tariff barriers. Unfortunately, we do not have data on collection rates, but given the example of Uganda, these rates will most likely reflect the upper-bound estimate of the tariff barriers to Ugandan exports. The implication is that tariff reductions under the AfCFTA will not substantially improve Uganda's market access on its existing export bundle. This is also evident in the table on the top 10 products exported to each region. Take, for example, Uganda's top exports to SACU (see Table A1 in Appendix A), namely coffee, vanilla, uprooted cuttings and slips, and cocoa beans, that together account for 65% of

[18] Analysing this using more disaggregated sectoral data, we find that the Stays of Applications do little to provide domestic producers with increased protection against imports from the rest of the world. Rather, they tended to provide additional support to exporters from the EAC.

the country's exports to the region. The statutory rate applied to these products is already zero, implying no additional gain in market access for these products.

Table 5: Average applied statutory tariffs imposed by African countries on Ugandan exports, 2018

		Simple average	Weighted average	Share Uganda in destination country imports (%)
Importer	SACU	10.5	1.6	0.01
	Nigeria	10.9	5.3	0.01
	Ghana	12.7	4.2	0.00
	Rest EAC	0.0	0.0	3.74
	Rest Africa	10.6	8.4	0.04
	EAC preference margin	15.5	23.4	

Source: Own calculation using data obtained from TRAINS. Data are for 2018, with exception of Nigeria (2016) and several countries included in the rest of Africa group where data for the most recent year is used if not available for 2018. rest of Africa also includes COMESA countries that provide preferential access to Uganda.

A second feature of the table is the very low share of Ugandan exports in African countries' imports. This is even true in the case of the EAC, where Ugandan exports make up only 3.74% of the rest of the EAC's imports. While the rest of the EAC dominates as a destination for Ugandan exports, from the perspective of EAC trading partners, Ugandan exports still only make up a small share of their total imports. The implication is that there is still scope for expansion of Ugandan exports into the EAC market.

A third outcome, which can be seen in a comparison of Ugandan tariffs on imports from partner countries (Table 4) and partner tariffs on Ugandan exports (Table 5), is that the AfCFTA will result in larger reductions in tariffs by Uganda on its imports from the region than reductions in tariffs on Ugandan exports. For example, Uganda's weighted average statutory tariff (incl. of SoA) on imports from SACU is 11.2% compared to the 1.6% tariff imposed by SACU on Uganda's exports.

A further consideration is the implication of preference erosion on Ugandan exports to the EAC region. As shown earlier, over half of Uganda's exports are destined for the rest of the EAC. Opening access to the EAC market to other African exporters thus poses a potential competitive threat to Ugandan exporters. This is a credible threat as Ugandan exports to the EAC benefit from a 23.4% preference margin (see final row of Table 5). There is also a wide overlap in products exported by Uganda and the rest of Africa to the EAC. Of the 676 products at the HS 4-digit level exported by Uganda to the EAC, 651 are also exported by the rest of Africa to the EAC. These indicators suggest potentially large correction effects within the EAC from the AfCFTA that will adversely affect Ugandan exports to the EAC.

A final consideration is the potential for Uganda to export new products to the African region. The above indicators, and the partial equilibrium model, provide estimates based on existing trade flows. As will be shown later, the expansion of firm exports into new markets is a key driver of aggregate export growth in recent years. Theoretically, trade liberalisation is also predicted to lead to an expansion in the number of firms exporting, and number of products being exported to new partners. For example, when comparing Ugandan exports to the EAC with those to the rest of Africa, we find that the exports to the EAC are higher in value and more diverse in terms of product range and concentration, e.g. Ugandan exports 1,599 distinct products at HS6-digit level to the EAC, and only 277 to SACU, 23 to Nigeria and 70 to Ghana. Further, those products exported to the rest of Africa tend to face relatively low tariff rates. Consequently, one

explanation for the low trade values and low number of product lines exported to the rest of Africa could be high tariff barriers in the destination markets.

To evaluate the extent to which tariffs in SACU, Ghana, Nigeria and the rest of Africa may impede diversification of Uganda's exports, we use the current bundle of goods exported by Uganda to the EAC as a counterfactual of what is possible under no tariff barriers. We then calculate the average statutory tariff currently applied by African countries on this bundle of goods. If the average tariff on the counterfactual bundle is high, this would then suggest that high tariff barriers in the destination markets are impeding diversification of Uganda's export bundle.

Table 6 presents the weighted average tariff on the counterfactual bundle of exports (column 2), as well as the average tariff applied on the existing bundle of exports. In all cases, the tariff on the counterfactual bundle exceeds that on the current export bundle by a sizeable amount. The narrow product range to the rest of Africa, with exports often concentrated in basic agricultural products, may therefore be a consequence of high tariff barriers Ugandan exporters face when trying to access their markets.

Table 6: Trade weighted average MFN tariffs on Ugandan exports to destinations

	Tariff on current exports	Tariff on EAC equivalent exports	Difference
Ghana	4.2	13.6	9.4
Nigeria	5.3	12.4	7.2
Rest Africa	8.4	14.4	6.0
South Africa	1.6	9.4	7.8

Notes: Based on TRAINS data. Column (2) reflects the tariffs imposed by the partner country on an import bundle equivalent to what Ugandan exports to the Rest of the EAC. If the partner country does not import the product from any country, it is excluded from the bundle.

An alternative interpretation of the high average tariff rates on the counterfactual bundle, is that this reflects the preference margin Ugandan exporters will receive in accessing the African markets upon the implementation of the AfCFTA. These preference margins range from 9.4% in SACU to 14.4% for the rest of Africa. These margins are substantially lower than the 23.4% preference margin Ugandan firms currently receive on the same bundle of goods they export to the EAC. Further, the above does not take into account rules of origin, which don't apply to EAC trade, but will apply under the AfCFTA. The implication is that, while there is some evidence to suggest that tariff barriers in the rest of Africa restrict the diversification of Uganda's exports, the preference margins that will be obtained through the AfCFTA will remain substantially below what those firms currently receive on their exports to the EAC. This may limit the extent to which the AfCFTA will diversify the product composition of Uganda's exports.

Ugandan firms in international trade

Behind the aggregate trade values lie the firms. It is now widely recognized, both in theory and the empirical literature, that firms differ enormously in terms of their characteristics, even within narrowly defined sectoral classifications (Bernard et al., 2003; Melitz, 2003; Bernard et al., 2007). Firms that trade are very different from firms that only supply the domestic market – they tend to be larger, more productive, pay higher wages, are more capital intensive and use more skilled labour (Bernard et al., 2007; 2018), including within Africa (Edwards et al., 2018). There are vast differences even across firms that export, with exports highly concentrated amongst few firms that tend to export multiple products to multiple destinations (Bernard et al., 2018; Fernandes et al., 2016). The systematic relationship between export behaviour and firm

characteristics imply that firm heterogeneity is important for understanding aggregate trade outcomes (Bernard et al., 2007).

Further, firms' responses to liberalisation influence how the economy adjusts to a more open market. Trade liberalisation induces structural change and aggregate productivity growth as relatively inefficient firms exit, new firms enter the export market and relatively efficient firms expand their exports (Pavcnik, 2002; Melitz, 2003). Trade liberalisation also induces productivity improvements within firms as they adopt new technology imbedded in imports (Halpern et al., 2015) and invest in productivity-enhancing technology (Bustos, 2011). Finally, the sources of export growth in response to liberalisation depend on whether existing firms expand exports of existing products to established destinations (intensive margin) or enter into new products or destinations, and on the degree to which new firms enter into exporting (extensive margins). The margins of adjustment are also affected by how trade agreements affect tariffs as well as the fixed costs of entering into exporting (Besedeš and Cole, 2017; Baier et al., 2018). This section uses detailed trade transaction data over the period 2010-2019 to analyse exporter behaviour in Uganda and how this varies across firm destinations, in particular the EAC, the rest of Africa and the rest of the world. We analyse the characteristics of export transactions as well as the exporter dynamics (entry, exit, survival and growth). Finally, we use a gravity model to isolate how market income and trades costs (distance, logistics) affect firm-level exports, including the relative contribution of the intensive (existing firm-destination relationships) and extensive (new firms, new firm-destination relationships) margins in supporting exports.

Transaction data

The transaction data are obtained from the Uganda Bureau of Statistics (2010-2016) and Bank of Uganda (2015-2019) and cover information on the date, product (at HS 8-digit level), destination/origin, value, quantity, port of entry/exit, customs and other revenues (incl. VAT) of every transaction by firms that exported, imported or transited goods through Uganda. Each year of data comprises over 900 000 transactions.

For the empirical analysis, the transactions for each anonymized firm are aggregated to annual level. Using the declaration type codes, exports are defined as covering direct exports (EX1), bonded exports for easily consumed products (EX8) and a category "ES1: Exports". Goods transiting through Uganda, imports into warehouses, temporary imports, re-imports and re-exports are excluded.

Several processes were implemented to clean the data for empirical use (see Appendix C for further details).

- To eliminate outliers, particularly in 2014 and 2016, transactions with unit values 3 standard deviations from the mean were excluded.
- Product line HS 49070090, which covers 'Other' products in the HS 4907 category "*Stamps; bank-notes; cheque forms; stock, share or bond certificates and similar documents of title*", was also excluded. Exports of this product averaged over 1 billion US dollars per year, or equivalently 30% of the total transaction-based export value each year (42% if compared to the BoU export data, excluding informal trade). In comparison, gross export data from UNComtrade, that matches the BoU export data, show an average export of only US$7 million for this product over the period.[19]
- Firms missing an anonymized trader identifier codes and transactions with missing destination or origin codes were excluded. The missing firms account for 7% of the total transaction-based export value across years, but the share exceeds 11% in 2011, 2017 & 2018.

[19] One concern was that this line-item was reflecting trade in bank-notes that were valued at face value, rather than the transaction value of the printed paper, as recommended under the International Merchandise Trade Statistics Compilers Manual (UN, 2010).

- Finally, gold (HS 710813) was excluded as much of the gold feeding the phenomenal growth in exports of this product in recent years (from 2% of formal exports in 2015 to 35% in 2019) is sourced from regional countries, including Democratic Republic of Congo, with little value addition to the imports.[20]

Table 7 presents some summary statistics of the export transaction data over two periods 2010-2014 and 2015-2019. The data for each exporter are aggregated to calendar years. A transaction in this table (and for the remainder of the analysis) is, therefore, defined as an HS8-digit product exported by a firm to a destination in a particular year.[21]

In total, we observe, on average, 11,630 export transactions in each year over the period 2010-2014. This falls to 7,234 in the period 2015-2019.[22] The decline in transactions can be attributed to a decline in the average number of exporters (2,179 to 1,556 combined with a reduction in the number of HS8-digit products exported (1,816 to 1,406). While the number of products exported is lower than when using the UNComtrade data, the trend is similar, suggesting a narrowing of the export product range over the past decade.[23] We now analyse some of the exporter characteristics and how these vary across destinations.

Table 7: Summary Statistics – Transaction data for exports

	Exports	
	2010-2014	**2015-2019**
Value of exports ($ mill)	1204	1045
Number of Transactions	11630	7234
Number of Firms	2179	1556
Number of Distinct Products	1816	1406
Number of Destinations	123	122
Share Net exports, excl gold	96	65

Notes: The following data are excluded: Gold trade (HS71), HS 49070090, firms with missing identifiers, and transactions with unit values 3 standard deviations from the mean. Net exports are taken from Atlas of Economic Complexity.

Exporter characteristics

For a comparative perspective, Table 8 presents summary measures of exporter characteristics for Uganda over the period 2015-2019 and other African countries. The data for other African countries, including Uganda, is drawn from Table 1 of Fernandes et al. (2016) and covers the period 2006-2008. Unlike the 2015-2019 data for Uganda, the transaction data in the other countries is not restricted to the same degree, so the measures are not directly comparable. Nevertheless, several features in the Uganda data are evident in the table.

First, Uganda underperforms the developing market average for most of the indicators. Aggregate exports for Uganda from 2006-2008 averaged $1.2 billion, just over half the

[20] https://www.engineeringnews.co.za/article/uganda-gold-exports-more-than-doubled-to-12bn-last-year-2020-03-11. Reported imports of gold, according to UNComtrade data and the transaction data, suddenly rose from close to zero to US$330 million in 2018 and then to US$1312 in 2019, which exceeded the value of exports in that year. One explanation for the sudden increase in both exports and imports is the opening of Africa Gold Refinery in Uganda in 2016.

[21] Strictly speaking, an export transaction refers to a specific shipment of a good by a firm to a destination at a point in time. Exporters may, for example, export a good to a destination multiple times in a year. In this paper, this would count as a single 'transaction' by the firm in the year.

[22] In the unadjusted transaction data, we observe an average of 145,068 and 125,611 transactions per year over the two periods.

[23] According to UNComtrade data, the total number of HS6-digit level products exported fell from 2,567 in 2013 to 2,322 in 2018. What explains the difference in products when using the UNComtrade data and the transaction data? A closer analysis of the data shows that between 353 and 833 of the distinct products are exported by firms that do not have an identifier. The exclusion of outliers reduces the number of products by an additional 103 over the full period.

median African country's export value. The total according to the unadjusted transaction data rose to an average of $2.07 billion from 2017-2019 (excluding the outlier year of 2016), which is still less than the median African country in the earlier period.

Second, Uganda's relatively low export level is primarily driven by too few exporters, rather than low values of exports per firm. This can be seen by decomposing the total export value into the number of exporters and the mean export value per exporter. Compared to the other African countries, Uganda had only 938 exporters in 2006-08, compared to a median of 1,715. There has been some success in raising the number of exporters to 1,556 in 2015-2019, but this number still remains less than half that of the earlier period average for the sample of African countries, and is also substantially lower than in its neighbour Kenya (5057). The difference in terms of mean value of exports per firm is less stark, with Uganda being the median country in the African sample over the period 2006-08 with an export value of $1,3 million. The average export value per firm in Uganda rose to $2,1 million over the 2017-19 period (using the unadjusted transaction data), for an annual average compound growth rate of 4.4%. This was far less than the 9.7% per annum GDP growth over the same period.

Table 8: Firm characteristics – Uganda compared to other African countries

	Total exports ($ billions)	No. of exporters	No. of exporters per thousand inhabitants	Mean exports per exporter ($ thousands)	Median exports per exporter ($ thousands)	Share of top 5% exporters (%)	Entry rate (%)	Exit rate (%)	Entrant survival rate (%)
Uganda (2015-19) excl. gold	1.1	1556	0.04	683	22	71	51	52	24
Uganda (2015-19) incl. gold	1.5	1559	0.04	1118	22	78	51	53	24
Uganda (2006-2008) incl. gold	1.2	938	0.03	1289	15	77	47	38	29
Kenya	4.0	5057	0.14	796	18	81	40	44	35
Tanzania	2.3	1899	0.05	1180	17	86	51	46	32
South Africa	58.8	21721	0.45	2699	29	92	28	26	49
Average - Developing Countries	21.7	7017	0.49	2206	63	81	38	37	43
Median Developing Countries	4.2	2931	0.22	1708	37	82	38	35	43
Average - African Countries	7.3	3585	0.26	1682	32	84	41	40	39
Median - African Countries	2.3	1715	0.06	1289	19	85	43	40	41

Source: Data for other African countries is obtained from Table 1 of Fernandes et al. (2016) and covers the period 2006-2008. The Fernandes et al. (2016) sample comprises 15 African countries and 38 developing countries.
Notes: The first row presents Uganda firm characteristics over the 2015-2019 period excluding gold, HS49070090, firms missing identifiers and the extreme outlier values for 2016. This has a dramatic effect on the mean value of exports per exporter (row 2). The mean export value per exporter based on the unadjusted transaction data from 2017-2019 (excl. the outlier year of 2016) is $2067 thousand. The total value averages $2.07 billion. The exclusion of gold and HS49070090 reduces total exports by 45 percent on average, but only reduces the number of exporters by around 6. The share of the top 5% of exporters rises to 77% once gold is included.

Third, while exports are concentrated amongst a few firms, the degree of concentration in Uganda is much lower than in other African and developing countries, pointing to a "truncated top" of the firm-size distribution. For example, the share of non-gold exports accounted for by the top 5% of exporters is 71% (78% if gold is included) and has not changed from the earlier period. In contrast, the median African country in Table 8 has

an export concentration share of 85%. Uganda had the 7th lowest concentration share in the 45 countries analysed by Fernandes et al. (2016).

As argued by Fernandes et al. (2016), this suggests that policy and other distortions are impeding investment and growth of high-productive firms. There are too few 'superstar' exporters in Uganda relative to its African peers, and relative to other emerging economies. These results present a picture of a 'truncated top' in the firm-size distribution in Uganda.[24]

Indicators of entry, exit and survival provide some insight into how domestic distortions and uncertainty may explain these outcomes. Where uncertainty is high, the "option value of entry" into exporting will also be high, resulting in more exporter entry and exit (Fernandes et al., 2016). Low rates of survival of these entrants, however, suggest the presence of domestic distortions, such as access to finance and regulatory burdens, that enable less efficient firms to survive in the domestic market, but not in the competitive foreign markets.

Looking at Table 8, entry and exit rates of exporters in Uganda over the 2015-19 period are over 50% pointing to a high degree of churn. The net entry rate (entry rate – exit rate) is slightly negative indicative of a gradual decline in the number of exporters from 2015 to 2019. The more recent exit and entry rates are also higher than the earlier 2006-08 period obtained from Fernandes et al. (2016), but differences in the cleaning processes of the transaction data make comparisons difficult. However, the 2006-08 values are not too dissimilar from other African countries, although they are higher than other emerging economies. Where a significant difference does arise is in the one-year survival rates of new entrants. These are extremely low in Uganda at 29% - the third lowest in all countries surveyed by Fernandes et al. (2016). These results point to an environment where firms struggle compete in markets outside of the country.

Regional characteristics of firm trade

To what extent do regional dynamics explain these findings? To better understand how regional trade flows may underpin the aggregate results, Table 9 disaggregates some of the exporter characteristics by destination region/country for 2018. The table presents, for each region/country, the total value of trade, the number of exporter-destination trading relationships and the number of transactions, defined as a firm-product (HS 8-digit)-destination export combination. Using this information, total exports can be decomposed into the number of exporter-destination relationships, the mean number of transactions per firm and the mean value of exports per transaction.[25]

The results in the table provide additional insight. As found with the product level analysis earlier, firm-level exports are highly regionalized, when measured in terms of the number of firms and number of transactions. In total there are 1,152 exporter-destination relationships with the EAC in 2018 resulting in a total of 3,569 transactions, or 3.1 transactions per firm. Compared to the EAC, the number of firm-destination relationships with the rest of the world is slightly higher (1,322) given the larger number of countries

[24] We also construct tables of the joint distribution of exporting firms and export value over the number of products and countries for Uganda and compare this against several other countries (US, South Africa, Portugal and Kenya). Uganda is distinctive in the disproportionately high share of exporters and export value in single-product or single-destination categories, and the disproportionately low share of firms and export value in the 11+ category for products or destinations. These results reinforce the picture of a 'truncated top' in the firm-size distribution in Uganda.

[25] The decomposition can be represented as $X_j = N_j \frac{X_j}{N_j} = N_j \frac{T_j}{N_j} \frac{X_j}{T_j}$, where X_j is the total value of exports to country *j*, N_j ($= \sum_i n_{ij}$ where $n_{ij} = 1$ if firm *i* exports to country *j*) is the number of firms exporting to country *j*, T_j ($= \sum_i \sum_k t_{ij}^k$ where $t_{ij}^k = 1$ if firm *i* exports product *k* to country *j*) is the number of firm-product combinations exported to *j*. For the region aggregates presented in Table 9, X_j, N_j and T_j are summed across all *j* in the region.

involved, but the number of transactions is much lower (1,801) leading to a significantly lower average number of transactions per firm (1.36). For exports to COMESA, a similar, although slightly attenuated picture to that of the EAC emerges. Looking across the rest of Africa, SACU, Nigeria and Ghana, the table shows that very few firms export and these firms export few products.

Furthermore, the average value per transaction is much lower for trade with the EAC ($0.12 million) compared to the rest of the world ($0.31 million). This is driven more by the relatively high number of transactions per firm to the EAC (3.1 vs. 1.36 to rest of world), rather than differences in the average value of trade per firm ($0.36 million to EAC vs. $0.42 million to Rest of World).

Overall, these results indicate that the number of firm-destination relationships and number of transactions per firm (the extensive margin), is more important than the value of exports per transaction (the intensive margin) in explaining trade with the EAC. The results suggest that trade agreements such as the EAC and COMESA have been effective in raising export values through increases in number of trading relationships and the number of transactions. However, consistent with the earlier results, a key challenge to Uganda's export growth is that there are too few firms with too few transactions trading with the rest of the world, and Africa, outside of the EAC and COMESA.

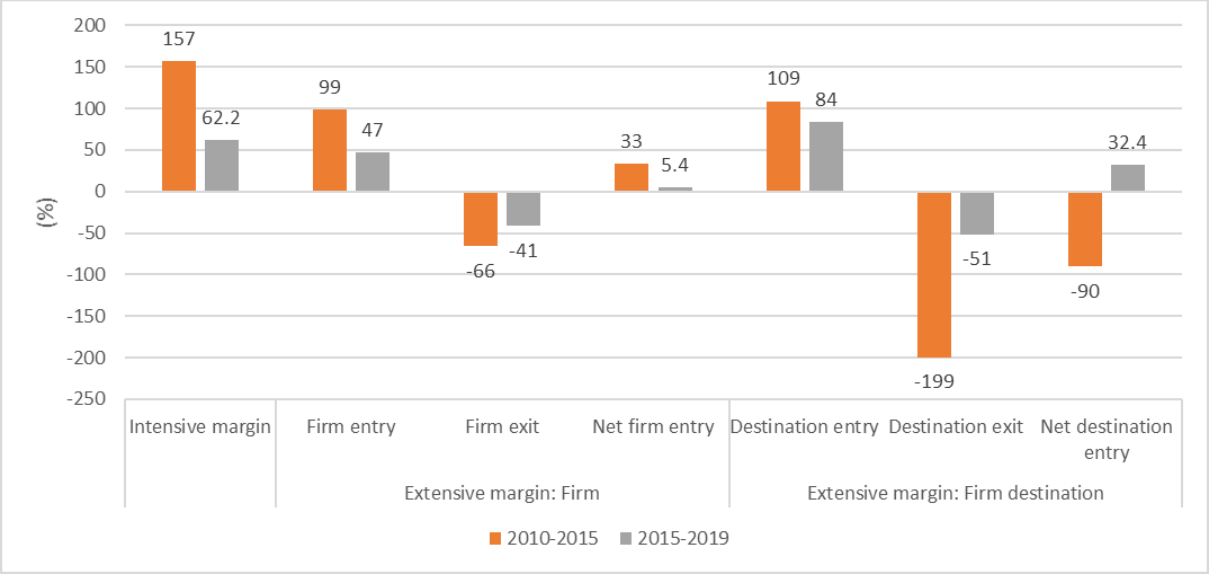
Table 9: Exporter characteristics by region (country average within groups), 2018

	Total trade ($US mill)	Number firm-destination relationships	Number transactions	Mean trade per firm-destination ($US mill)	Mean number transactions per firm	Mean value per transaction ($US mill)
	(1)	(2)	(3)	(4)	(5)	(6)
Rest EAC	416	1152	3569	0.36	3.10	0.12
SACU	4	59	77	0.06	1.31	0.05
Nigeria	1	6	10	0.11	1.67	0.06
Ghana	2	4	20	0.41	5.00	0.08
Rest COMESA	182	598	1605	0.30	2.68	0.11
Rest Africa	14	86	111	0.16	1.29	0.12
Rest World	558	1322	1801	0.42	1.36	0.31

Source: Own calculations using export transaction data.
Notes: Sample excludes gold, HS49070090, missing firms, missing destinations, and outliers. A transaction is defined as a positive firm-product (HS 8-digit)-destination export combination. Note that the region aggregates are calculated as the sum of the individual country results, i.e. for the EAC the total number of firms is calculated as the sum of the number of firms trading with each individual EAC member. Firms that export to multiple EAC partners will, therefore, be duplicated. Values in column (4) = (1)/ (2). Column (5) = (3)/(2) and column (6) = (1)/(3).

We are also able to use the transaction data over the full 2010-2019 period to study the dynamics behind the firm-destination export relationship. Figure 4 presents a decomposition of aggregate export growth from 2010 to 2015 and 2015-2019 using transaction data aggregated to the firm-destination level. Growth is decomposed along several margins: (i) continued exports by firms to existing destinations (firm-destination intensive margin), (ii) the entry and exit of firms (firm extensive margin), and (iii) entry and exit by continuing firms into and out of export destinations (firm-destination extensive margin).

Figure 4: Decomposition of export growth into extensive and intensive margins, 2010-2015 and 2015-2019



Notes: Based on transaction data aggregated to the firm-destination-year level. Analysis excludes gold (710813) and oil (271010). Years denote end-of-year trade values.

The figure illustrates a very high contribution of the intensive margin (continued firm-product-destination exports) to export growth over full period, but a lower contribution (62.2%) over the more recent 2015-2019 period. The remaining source of growth (37.8%) is almost entirely attributable to net entry by firms into new export destinations. Although there is substantial churn with entry and exit as continuing exporters experiment with destination markets (or export on an ad hoc basis), over the more recent period the entry effect dominated the exit effect. This was not the case over the prior 2010-2015 period when existing exporters experienced a net reduction in firm-destination combinations. There is also substantial churn in firms entering and exiting exporting. The entry of new exporters makes a substantial contribution in each period, but this is largely offset by firms exiting exporting, with only a small positive net contribution from 2015-2019. Adding the contribution of the intensive margin, implies that existing exporters contributed 94.6% towards export growth (62.2%+32.4%). Overall, these results illustrate the importance of the firm-destination extensive margin in driving export growth in Uganda over recent years. However, the low net contribution of new firms to export growth signals a failure to grow and diversify the firm export base.

Table 10 presents additional information on the exporter-destination (entry, exit, survival), but also splits the results according to destinations, namely: the EAC, rest of Africa and rest of world. The objective is to identify whether firm dynamics differ according to the destination of the export relationship. The annual average values over the 2015-2019 period are presented.

Table 10: Exporter-destination dynamics, 2015-2019

	Rest EAC	Rest Africa	Rest World	Total
Number new trade relationships	653	425	580	1658
Entry rate	53.6	58.3	44.8	51.2
Exit rate	58.5	59.9	44.6	53.5
1 year survival rate	23.3	23.7	34.3	27.1
2 year survival rate	10.1	11.3	20.0	13.7
3 year survival rate	5.8	9.9	16.8	10.3
…of new exporters	12.1	7.4	3.6	6.7
…of existing exporters	3.9	9.1	45.5	13.0
Mean value exports of entrants (USh mill)	279.1	201.4	390.2	299.1
Average annual export growth of new trade for 3yr survivors (%)	18.4	34.1	61.0	44.7
Average annual export growth of existing export relationships (3yr window) (%)	4.9	23.2	44.5	27.7

Notes: Entry rate is the average over 2015-2019 period. 1 year survival rate covers period 2015-2018, 2 year covers 2015-2017 and 3 year covers 2015-2016. If restricting to 2015-16, the survival rates do not differ by much (1 year falls to 25.2% from 27.1%). Mean value of export growth covers new trade relationships over period 2015 & 2016. Entry in a trade relationship may be due to new firm entry, or existing firm expanding into new markets. Exit from a trade relationship can arise from firm exiting from exporting or a continuing firm exiting from a destination. USh denotes Uganda Shilling.

Looking at the first row, there were on average 653 new exporter-destination trading relationships established each year with EAC partners, despite this group only comprising of 5 destinations. The EAC accounts for a higher share of new trade relationships than the other regions. Aggregate entry and exit rates are high, as shown earlier, but are particularly high for the EAC and rest of Africa (in excess of 54%) and lower for the rest of the world (45%). To the extent that high entry and exit rates reflect information uncertainties, the results suggest lower uncertainty by firms in establishing trading links with the rest of the world than within Africa.

Of particular concern are the very low one-year survival rates of new firm-destination trade relationships. Only 27.1% of new relationships survive one year. The drop off in survival is very steep with only 13.7% of new relationships surviving two years. By year three, 10.3% of new relationships are still present. Looking across regions, we note several interesting features. The one-year survival rate of new export relationships is slightly higher with the rest of world (34.4%) than for EAC (23.3%) and rest of Africa (23.7%). By year three, the survival rate of new trading relationships with the EAC falls to 5.8%, with rest of Africa to 9.9% and with the rest of the world to 16.8%.

Also shown in the Table are the survival rates of new destination relationships established by existing exporters and those by new exporters. The three-year survival rate of existing exporters is 13% compared to 6.7% for new exporters. When looking across regions, the three-year survival rate of new trade relationships with the rest of the world by existing exporters is highest at 45.5%. This suggests that while existing exporters are more able to compete in export markets than new exporters, those that export to the rest of the world are far more able to survive the international competitive pressures. These are more likely to be relatively efficient firms.

Looking at export values, we also find that new firm-destination export relationships with the rest of the world commence with a higher initial trade value (USh390 million) and once established, experience higher growth. The three-year average annual export growth rate of new trade relationships that survive is 61% per year to the rest of the world, compared to 18.4% to the EAC and 34.1% to the rest of Africa. Growth rates of

new firm export relationships that survive are also much higher than that of established export relationships (44.7% vs. 27.7%).

These results provide several insights into the exporter dynamics and how these vary by region. The results suggest greater uncertainty with respect to firm export relationships within Africa as compared to the rest of the world. The survival rates indicate that new firm relationships in the continent struggle to survive, suggesting the selection of relatively inefficient firms into these markets. In comparison, relatively efficient firms with prior experience in exporting, select into establishing new export relationships with the rest of the world. These new relationships commence with a higher initial export value, have a higher survival rate, and stronger growth rates than new export relationships with the EAC and rest of Africa.

These findings corroborate the data from Table 9 that show relatively higher contributions of the extensive margin to growth in exports to the region compared to the rest of the world, where higher values of exports per transaction (intensive margin) play a relatively stronger role. These results show that opening access for firms to regional markets can play an important role in growing Uganda's exports. The high entry and relatively high survival rates of export relationships with rest of Africa (compared to EAC) signal the potential of region and AfCFTA to boost trade. However, care should be taken to ensure that policies to enhance regional trade do not come at the expense of policies to improve firm competitiveness and access into international markets.

Firm export performance and destination characteristics

We now follow Bernard et al. (2007) and use a firm-gravity model to analyse how destination characteristics such as GDP, distance and trade costs affect Ugandan exports to each destination.[26] We focus on the effects of destination characteristics on aggregate exports, as well as the number of exporters, the mean value of exports per firm, the mean number of transactions per firm and the mean value of exports per transaction. The outcome export variables are aggregated to the destination level and cover the period 2010-2019.

The destination characteristics include the standard gravity variables such as GDP in constant US$, bilateral distance from Uganda, and dummy variables (=1) for common official language and common colonizer.[27] To capture the effect of tariff barriers, the regressions include the average applied statutory tariff rate on Ugandan exports obtained from TRAINS.[28] To control for the cost and efficiency of logistical services, the regressions include a standardized Logistics Performance Index (LPI), obtained from the World Bank. The LPI is a summary indicator that combines data on the efficiency of customs and border clearance, the quality of trade and transport infrastructure, the ease of arranging competitively priced shipments, the competence and quality of logistics services, the ability to track and trace consignments, and the frequency with which shipments reach consignees within scheduled or expected delivery times.[29] The regressions are estimated using Ordinary Least Squares.

The results are presented in Table D1 in Appendix D. To help illustrate some of the key relationships, Figure 5 to Figure 8 present scatter plots of aggregate exports and its

[26] Fernandes et al. (2016) also present gravity model estimates but look at how aggregate exports and its components vary by the home country GDP and GDP per capita.
[27] The data for distance, contiguity, common colonizer and common language are obtained from CEPII. The data on GDP in constant US$ is obtained from the World Development Indicators (WDI).
[28] Missing tariff data are first replaced with the two-year lagged average tariff, and, if still missing, by the closest tariff in the subsequent two years.
[29] The index ranges from 1 (low) to 5 (high). To minimize loss in observations, the simple average for each country of all available data from 2010-2018 is used in the empirical analysis. The data are then standardized by subtracting from each country indicator the global average and dividing by the global standard deviation. A value of one, thus, reflects a one standard deviation increase in the indicator.

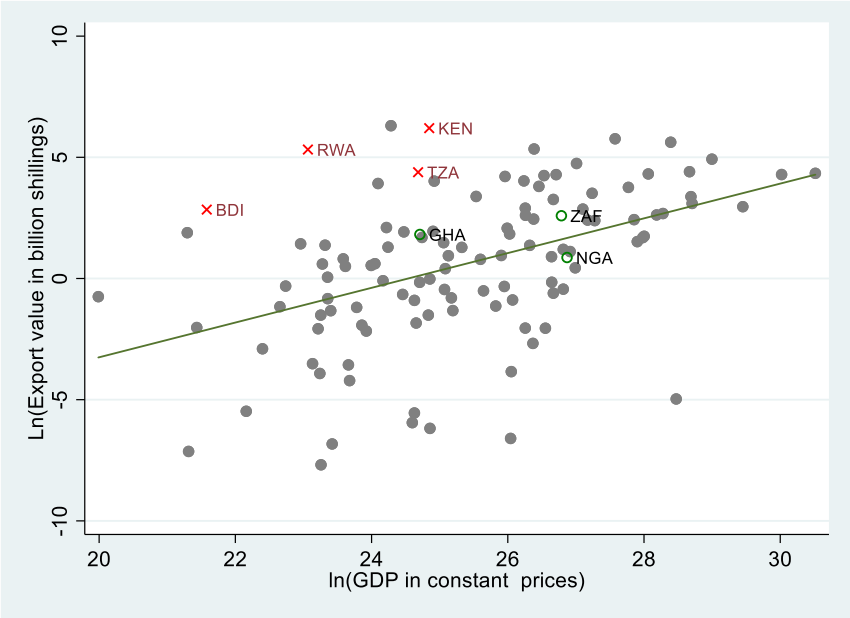
components against foreign income using data for 2018. As shown in the regression results (and in Figure 5), Uganda's aggregate exports are increasing in destination country income, a result that corresponds with the international empirical literature (Bernard et al., 2007). A 10% increase in destination income is associated with an 8.7% higher export value.

To unpack what drives this aggregate export relationship, columns (2) and (3) decompose the elasticity into the number of exporters (extensive margin - see also Figure 6) and the mean value of exports per firm (intensive margin). Columns (4) and (5) further decompose the relationship for the mean value of exports per firm into the number of transactions per firm (see Figure 7) and the average value of exports per transaction (see Figure 8).

These results reveal that the positive income elasticity arises because higher income countries attract more exporters (extensive margin) as well as higher average firm export values (intensive margin). However, the positive association with average firm export value is driven by increases in the average value of each transaction (product), not through increases in the range of products exported by each firm. The extensive margin (number of firms and range of products) and intensive margin (value of transactions per firm) contribute roughly equally towards the aggregate income elasticity. These results are expected. With higher destination incomes, and closer destinations, less productive firms find it profitable to enter the export market. Existing firms also find it profitable to increase the value of their exports.

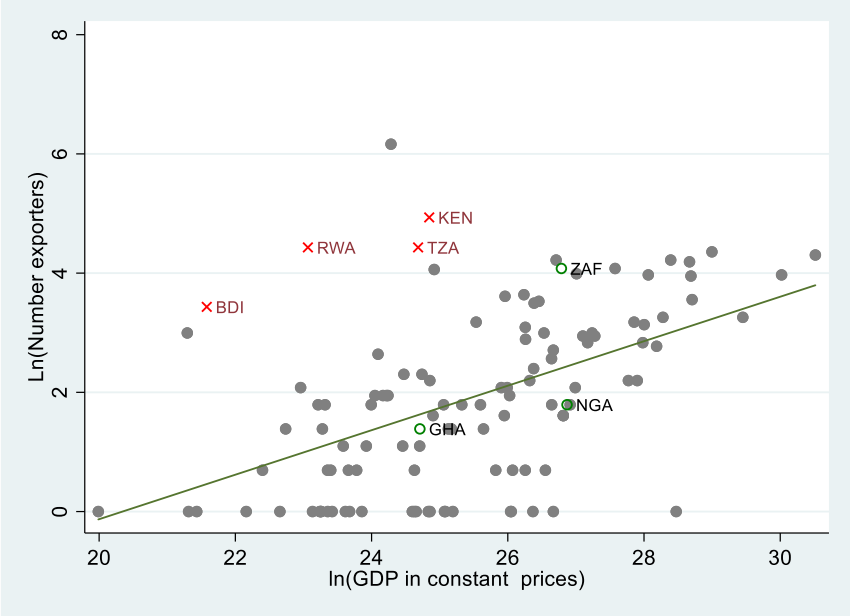
Figure 5 shows that the EAC countries are extreme outliers in terms of the aggregate value of exports. The regression results show that this holds even after controlling for income, distance and other explanatory variables such as tariff rates (the coefficient on the EAC dummy is 3.35). What gives rise to this relationship, as shown by the results in columns (2) and (5) and Figure 6 and Figure 7, is that EAC trade is comprised of a disproportionately large number of firms and a disproportionately large number of products per exporter. The average value of exports per firm transaction to the EAC is no higher than the rest of the world (see, for example, Figure 8 - the EAC countries are only slightly above the regression line). This finding corroborates the earlier findings discussed in relation to Table 9.

Figure 5: Ugandan bilateral export value against destination GDP



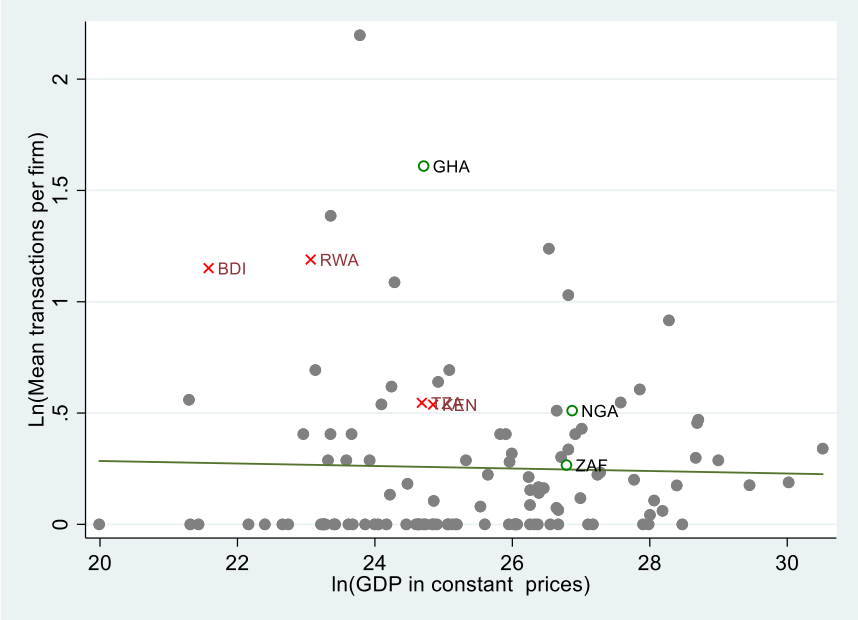
Source: Own calculations using Uganda transaction data and GDP data obtained from World Development Indicators.

Figure 6: Number of exporters to each destination against destination GDP, 2018



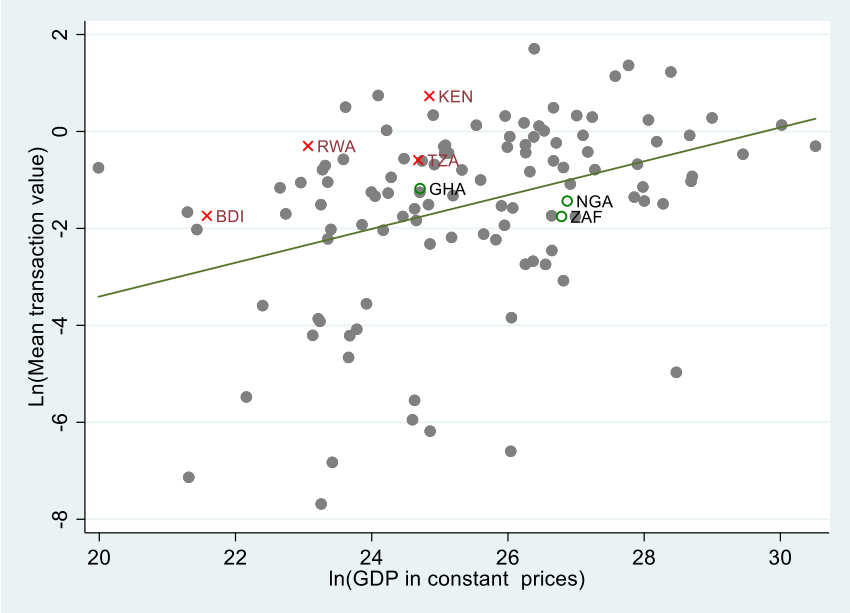
Source: Own calculations using Uganda transaction data and GDP data obtained from World Development Indicators.

Figure 7: Mean number of transactions by firm to each destination against destination GDP, 2018



Source: Own calculations using Uganda transaction data and GDP data obtained from World Development Indicators.

Figure 8: Mean export value of firm export transactions against destination GDP, 2018



Source: Own calculations using Uganda transaction data and GDP data obtained from World Development Indicators.

The regression results also provide insight into the effect of tariff protection in destination markets on aggregate exports and its components. As discussed earlier, membership in the EAC customs union is associated with substantial increases in Ugandan exports to the member countries. In contrast, lower tariffs under the COMESA FTA do not appear to have had a substantial impact on Ugandan exports to the member countries. The estimates also include a variable which captures the average tariff imposed on Uganda's exports. We find no significant association of this variable on aggregate exports, although once the EAC and COMESA dummy variables are dropped from the

regression, a very strong and significant negative association emerges. Looking at the margins through which aggregate exports are affected, destination tariffs reduce the mean value of exports by firms to that destination, with this effect mainly driven by lower average export values per transaction.

Overall, the implication is that reductions in destination tariffs can be effective in raising Uganda's aggregate exports. This is particularly relevant in the case of the AfCFTA, as Ugandan exports to the region (outside of EAC and COMESA) are currently more constrained by tariff barriers (an average tariff of 13% between 2017-2019) than its exports to the rest of the world (4.6%). The AfCFTA, through coordinating continent wide tariff reductions, will thus enhance market access for Uganda firms. The regression results illustrate that the increase in exports is more likely to be driven by an expansion in the value of exports per firm, than increases in the number of exporters.

High tariffs are not the only constraint to boosting Uganda's exports to other African markets. While trade with EAC partners is fully liberalised, Non Tariff Barriers (NTBs) imposed unilaterally continue to hamstring Uganda's export performance. Kenya's recent import bans on Ugandan dairy, maize and poultry on the grounds that Ugandan exports did not meet quality standards highlight the deleterious effect that NTBs can have on export-oriented value chains.

Ugandan exporters face some of the highest trade costs in the world. The 2018 World Bank Logistics Performance Indicators, which measures the cost of transporting tradeable goods, ranked Uganda 102nd out of 160 countries, below other landlocked African countries such as Rwanda (57th), Burkina Faso (91st), Mali (96th) and Malawi (97th). Indicators of the quality of trade and transport infrastructure and the ability to trade and trace consignments are particularly low in Uganda compared to the other countries and regions. This is shown in Table 11 that presents several indicators of logistics performance (e.g. quality of trade infrastructure, efficiency of clearing process, quality of logistics) and trading costs (time and cost to export or import) for Uganda and selected countries (Rwanda and rest of EAC) and regions (Sub-Saharan Africa, ASEAN, EU).

Bureaucratic delays and red tape also increase the cost of moving goods across borders. The World Bank's 2020 Doing Business report ranked Uganda 121st out of 188 countries on the Trading Across Borders indicator, which measures the time and cost associated with the logistical process of exporting and importing goods. By comparison, Rwanda was ranked 88th. The time to comply with border requirements (154 hours) and document requirements (138 hours) for imports are particularly high when compared against the average for SSA (113 hours for border requirements and 90 hours for document requirements) and are far higher than those for Rwanda (86 and 48 hours) - Table 11. In contrast, Uganda performs relatively well compared to the SSA average in terms of time and costs to comply with border and document requirements for export.

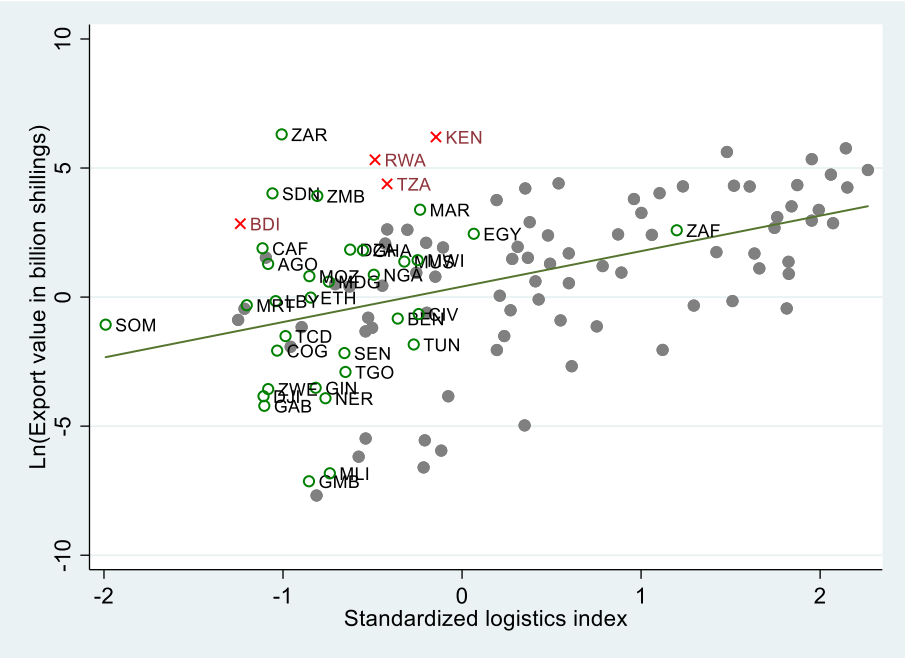
Table 11: Logistics performance and trading costs in Uganda compared to other countries and regions, 2018

Variable	Rwanda	Uganda	Rest EAC	SSA	ASEAN	EU
Logistics performance indicators (LPI)						
LPI overall (1=low to 5=high) (WDI)	2.97	2.58	2.44	2.43	3.02	3.55
Quality of trade and transport infrastructure (1=low to 5=high) (WDI)	2.76	2.19	2.25	2.19	2.80	3.50
Frequency of on-time shipments (1=low to 5=high) (WDI)	3.35	2.90	2.68	2.76	3.40	3.89
Efficiency of clearance process (1=low to 5=high) (WDI)	2.67	2.61	2.17	2.25	2.79	3.38
Ease of arranging competitively priced shipments (1=low to 5=high) (WDI)	3.39	2.76	2.42	2.50	3.03	3.43
Quality of logistics services (1=low to 5=high) (WDI)	2.85	2.50	2.57	2.36	3.01	3.53
Ability to track and trace consignments (1=low to 5=high) (WDI)	2.75	2.41	2.54	2.50	3.09	3.59
Trading costs:						
Time to export: Border compliance (hours) (DB)	97.30	64.00	80.43	96.50	58.58	17.48
Time to export: Document compliance (hours) (DB)	42.00	51.00	106.75	71.79	66.16	1.87
Time to import: Border compliance (hours) (DB)	85.70	154.30	228.83	113.46	67.86	5.80
Time to import: Document compliance (hours) (DB)	48.00	138.40	210.00	89.97	66.72	0.62
Cost to export: Border compliance (USD) (DB)	183.30	209.40	547.23	588.58	311.80	220.95
Cost to export: Document compliance (USD) (DB)	110.00	101.90	202.33	160.32	106.44	43.15
Cost to import: Document compliance (USD) (DB)	121.10	295.60	466.25	256.95	105.29	62.50
Cost to import: Border compliance (USD) (DB)	282.10	446.70	851.85	634.34	348.68	272.67
Prevalence of trade barriers (1=strongly limit to 7=no limit) (WEF)	4.44	4.64	3.76	3.95	4.48	4.89
Burden of customs procedures (1=inefficient to 7=efficient) (WEF)	5.28	4.23	3.76	3.69	4.12	4.98

Source: Own calculations using World Development Indicators (WDI), World Bank Doing Business indicators (DB) and World Economic Forum indicators (WEF). EU refers to European Union, ASEAN refers to the Association of Southeast Asian Nations, and SSA refers to Sub-Saharan Africa.

To analyse the implications of high logistics costs on Ugandan exports, Figure 9 plots Uganda's aggregate bilateral exports against the overall logistics performance indicator (LPI) in the destination country. The LPI is standardized, such that a value of one implies that the country's LPI is one standard deviation above the average across all countries. The figure shows that African countries (hollow circles) fall below the global average (sometimes substantially), with the exception of South Africa and Egypt. The simple scatter plot also illustrates that poorer logistics performance in the destination country negatively affects Ugandan exports. The regression results in Table D1 corroborate this relationship. A one standard deviation improvement in destination logistics is associated with a 182% higher aggregate export value.[30] The implication is that poor logistics in Africa impede Ugandan exports into the region. This is borne out in simulations using the regression coefficients - if African countries halved the gap between their logistics performance and the average for the world, Uganda's aggregate exports to Africa would increase by 15% (35% if excluding EAC and SACU).[31] Exports to Nigeria and Ghana would increase by 60% and 37%, respectively.

Figure 9: Destination logistics performance and Uganda's bilateral export value, 2018



Source: Own calculations using export transaction data and Logistics Performance Indicator data from World Development Indicators. The LPI used for each country is the average of the LPI measures from 2016 to 2018.

The regression results in Table D1 show that Uganda's higher export values to countries with good logistics performance is driven by a combination of more exporters (extensive margin) and higher values of exports per firm and per transaction. This is consistent with other findings reviewed by de Melo and Wagner (2016) and Beverelli et al. (2015) who estimate large gains for Sub-Saharan Africa in the number of products exported by destination and in the number of destinations associated with better indicators of trade facilitation. The implication is that improvements in trade facilitation in Africa, as planned for under the AfCFTA, can be effective in assisting Uganda to diversity and grow its export bundle.

[30] Calculated as exp(1.037)-1.
[31] Excludes countries for which logistics performance indicator data are not available, e.g. South Sudan.

Simulating the impact of an FTA between SACU, EAC, Ghana and Nigeria

In this section, we use the partial equilibrium World Bank/UNCTAD designed SMART model to simulate the elimination of customs tariffs between the EAC, the South African Customs Union, Nigeria and Ghana.[32] We also present preliminary simulation results of a continent-wide liberalisation scenario under the AfCFTA. To conduct the analysis, we draw upon HS6-digit data for 2018 as reported by African countries obtained from TRAINS.[33] This detailed data allows for a very disaggregated analysis of the outcomes of the AfCFTA.

The analysis of model results is structured around three particular outcomes for Uganda, namely the impact on (a) imports, (b) government revenue and (c) exports. To frame the analysis, we focus on several key channels through which the AfCFTA affects trade flows.

- Lower tariffs stimulate trade through *trade creation* effects. For importing countries, the lower tariffs reduce government revenue, but these losses are more than offset by gains to consumers through lower prices and increased consumption. Firms in the originating country gain through expansion of their exports.
- Lower tariffs result in a redirection of trade from other countries towards the new partners granted preferential access. When this trade is diverted from efficient countries that are not already part of a FTA with the importing country, this is termed *trade diversion*, and reduces welfare in the importing country as the government loses tax revenue, without commensurate gains to consumers. However, the diversion of these imports towards the new partners benefits the exporters in those countries.
- The AfCFTA will also result in a redirection of imports away from existing FTA member countries (e.g. the EAC and COMESA for Uganda), towards other African countries. This trade reflects a reversal of the *trade diversion* effects that were associated with the implementation of the original FTA agreements. This is termed *trade correction*, as in de Melo and Regolo (2014), and is welfare enhancing for the importing country. While exporters in the new African partner countries benefit, those in the existing FTA experience declines in export values. The trade correction effect is particularly relevant for Uganda as a very high share of its exports are destined for the EAC, and, to a lesser extent, COMESA. These exports also tend to be concentrated in products where the EAC imposes high external tariffs. By opening up these markets to competing African exporters, the AfCFTA will expose Ugandan exporters to increased competition leading to potentially large reductions in its exports.
- Regional integration aimed for under the AfCFTA is ‘deeper’ than just tariff reductions and includes steps to eliminate non-tariff barriers and reduce trade costs through improvements in trade facilitation. These barriers to trade are frequently shown to be far more restrictive to intra-regional trade than tariffs alone (African Development Bank, 2019; World Bank, 2020). For a more comprehensive perspective of the impact of the AfCFTA it therefore is important to consider how reductions in these barriers affect trade flows.

While the model is useful in presenting a disaggregated perspective of trade and revenue adjustments under the AfCFTA, it is important to highlight several of its limitations. Firstly, the model is static in nature and does not account for some of the dynamic gains, such as productivity improvements linked to access to a wider range of imports, learning from exporting, and reductions in costs from greater economies of scale.[34] The model therefore will potentially under-estimate the long-run benefits associated with the agreement. A second

[32] Full details on the SMART model are provided by Laird and Yeats (1986).
[33] Several African countries do not report data for 2018. The most recently available reported data is used in these cases.
[34] Bigsten et al. (2004), for example, show significant improvements in productivity for African firms through learning by exporting. Edwards et al. (2018, 2020) find a strong positive association between access to imports and firm productivity and export performance and export diversification in South African manufacturing.

limitation is that the simulated trade outcomes are based on existing trade flows. Changes in trade flows arising from firms entering or exiting the export market, or expanding or contracting the range of products and destinations they export to, are not captured. As shown in the firm-level analysis, changes in the extensive margin may be an important source of export growth. Third, the model results are very sensitive to the import demand and substitution elasticities.

The results presented in this section are based on an elasticity of substitution of 1.5, as has commonly been applied in the literature (McIntyre, 2005; Khorana, 2009; Inama, 2014). Import demand elasticities at the HS6-digit level are obtained from Kee et al. (2008).[35] Additional simulations using alternative demand elasticities are also conducted to test the sensitivity of the results to this choice. Fourth, the SMART model does not account for inter-sectoral implications or general equilibrium effects of trade shocks. Simulations based on computable general equilibrium models, as used by the World Bank (2020) and African Development Bank (2019), are better able to take these effects into account, but suffer the shortcoming of using more aggregated data.

A final shortcoming of the standard SMART model is that the simulations are often based on the applied statutory rates. As shown earlier, exemptions on duties imply that the collection rate is often much lower in the case of trade with non-preference partners but is higher for trade with FTA members when there is not full utilisation of the tariff preference. Simulated trade responses using applied statutory rates can thus be biased upwards or downwards depending on the trade partner. To resolve this problem, the model results presented here are based on the collection rates for Uganda.[36] Unfortunately, collection rates are not available for the other countries, which will affect estimates of the impact of the AfCFTA on Uganda's exports.

Three different outcome scenarios are simulated:

- Scenario 1: Full liberalization between the EAC, SACU, Ghana and Nigeria.
- Scenario 2: Schedule A tariff reductions between the EAC, SACU, Ghana and Nigeria.
- Scenario 3: Full liberalization between the EAC, SACU, Ghana and Nigeria; and their implementation of a trade facilitation agreement (TFA) that reduces import trade costs on non-mineral products.

Declines in trade costs from implementing a TFA are taken from Table 4.2 of the World Bank (2020). These values are derived from estimates of the ad valorem equivalents of reduction of time in customs that stem from the full implementation of the World Trade Organisation Trade Facilitation Agreement by de Melo and Sorgho (2019), as cited in World Bank (2020). As in World Bank (2020), scenario 3 halves these estimates with a cap of 10 percentage points. The outcome is a reduction in trade costs of 10 percentage points for Nigeria, Tanzania and Kenya, 4.3 percentage points for Uganda, 2.6 percentage points for SACU and 2 percentage points for Rwanda. These reductions are assumed to apply to imports from all countries in the world (i.e. on MFN basis), with the exception of minerals, petroleum products and precious metals (HS 25-27, 71). The effects of reductions in trade costs for exporters are not included.

Imports and revenue collected

Scenario 1

Table 12 presents a summary of the simulated impact on imports and government revenue of the different scenarios. Under Scenario (1), imports from SACU, Nigeria and Ghana increase by $31.5 million, or 9.3% of their initial value. Imports from SACU make up 99% of this

[35] Some import demand elasticities were very high, sometimes in excess of 100. Consequently, the elasticities were capped at the 99th percentile. The first percentile elasticity was set as the floor elasticity.
[36] On the other hand, the simulations assume full utilization rates. See Inama (2014) for an exception to this.

increase. Unpacking the sources of this growth, reveal that just over half of the increase ($16.2 million) is driven by trade creation. More concerning, is that trade diversion from the rest of the world makes up $US12.7 million, or 40% of the total increase in imports from the region. A re-direction of imports from the EAC and COMESA (trade correction) contributes an additional $US 2.6 million. The implication is that while imports from the region rise considerably in response to the trade agreement, the net effect on aggregate imports is substantially reduced by the high share of these imports arising from trade diversion. Aggregate imports rise by only $16.2 million (equivalent to the trade creation effect), or in percentage terms, by only 0.24%.

Table 12: Summary of liberalization scenario results on Uganda imports and revenue

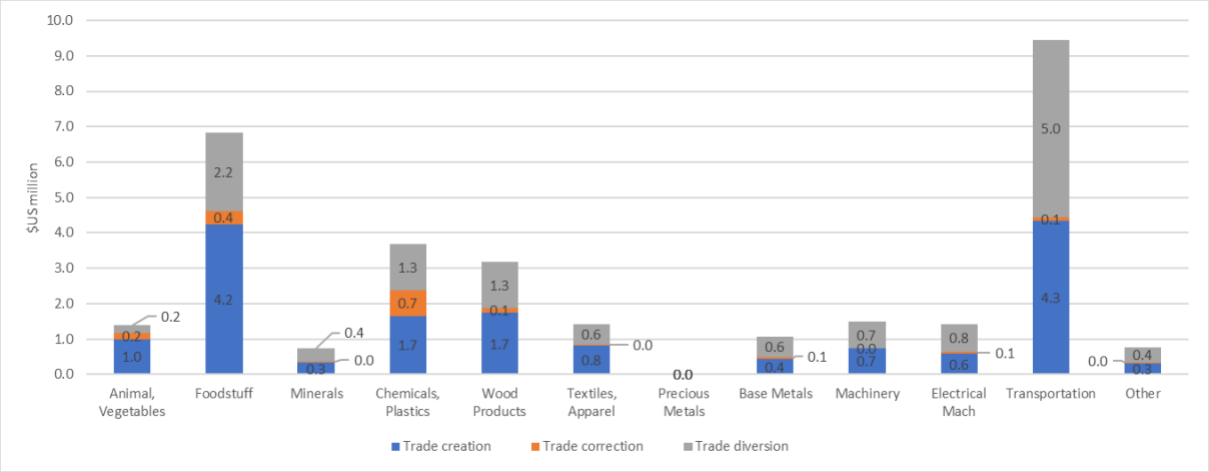
		Scenario 1: Liberalisation	Scenario 2: Schedule A	Scenario 3: Liberalisation + TFA
Imports	Change value imports, new FTA partners ($US mill)	31.50	6.39	60.79
	SACU	31.26	6.34	60.50
	Nigeria	0.17	0.05	0.21
	Ghana	0.07	0.01	0.08
	% change in total imports, new FTA partners	9.32	1.89	17.98
	Change value imports, new FTA partners by source ($US mill)			
	From: Trade creation ($US mill)	16.21	3.23	16.21
	From: Trade correction ($US mill)	2.58	0.36	2.58
	From: Trade deviation ($US mill)	12.70	2.81	12.70
	From: TFA ($US mill)			29.29
	Change value imports, other countries ($US mill)	-15.28	-3.17	314.15
	Change total value imports ($US mill)	16.21	3.23	374.94
	% change in total imports	0.24	0.05	5.66
Revenue	Change in customs revenue ($US mill)	-19.75	-3.42	0.74
	% change customs revenue	-5.87	-1.02	0.22
	Change in border revenue ($US mill)	-16.82	-3.28	70.32
	% change total border revenues	-1.01	-0.20	4.24
	Change in average tariff (percentage points)	-0.31	-0.05	-0.26
	% change in border price	-0.30	-0.05	0.74

Notes: Change in border revenues include tariff duties, VAT, excise duties, withholding taxes, petroleum taxes and environmental taxes on imports. Total simulated border revenues for Uganda are USh 6184 billion, which is 89% of Uganda Revenue Authority declared revenues from international trade in 2018/19.

Figure 10 presents the impact, in $US millions, across industries of Scenario (1) on combined imports from SACU, Nigeria and Ghana. The change in imports is broken down into the contribution by trade creation (also equal to the total increase in imports), trade diversion and trade correction. Imports of Transportation equipment rise by the highest amount ($US 9.5 million), followed by Foodstuff ($US 6.8 million), Chemicals & plastics ($US 3.7 million) and Wood products ($US 3.2 million). The increase in imports of Precious metals (mainly gold), Minerals, Base metals and Other products increase by less than $US1 million each. In all cases, SACU accounts for over 98% of the rise in import values within these industry categories. Looking across the HS6-digit data (Table E1 in Appendix E) shows that the increases in imports are concentrated within few products. The top 5 products account for 85% of the increase in imports from Ghana (Woven fabrics, nonconiferous wood, diesel passenger vehicles), 47% from Nigeria (sanitary pads, wigs, glass sheets, smart cards) and 44% from South Africa (passenger vehicles, diesel trucks, sugar, wine, uncoated paper).

Looking at the sources of import growth across industries, trade diversion accounts for over half of the increase in imports in several industries, including Transportation, Machinery, Electrical Machinery, Minerals and Other industries. The diversion in Transportation equipment from the rest of the world, reflects South Africa's regional dominance in vehicle production and exports (albeit under considerable protection and financial support), as well the applied barriers of close to 13%. Trade correction plays a relatively important role in raising imports of Foodstuff and Chemicals & plastics.

Figure 10: Impact of Scenario 1 on Uganda imports from SACU, Nigeria and Ghana ($US millions)



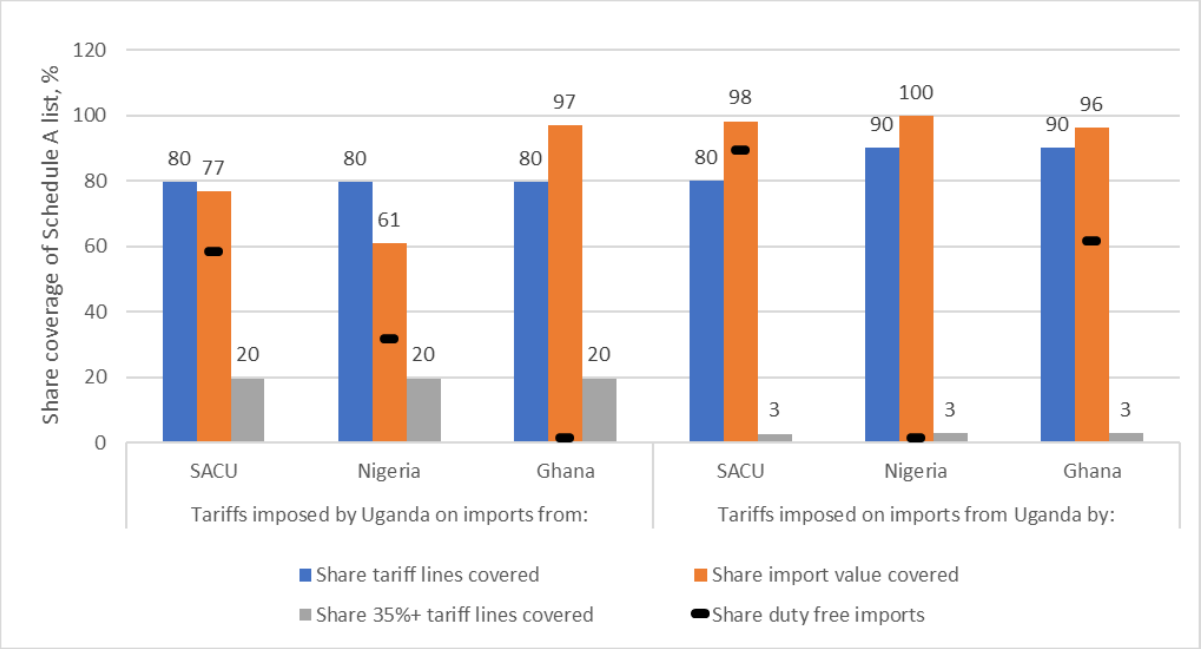
Source: Own calculations using SMART model based on collection rates for Uganda obtained from Uganda Revenue Authorities, and trade data obtained from TRAINS for 2018 or nearest year.

Scenarios 2 and 3

The AfCFTA does not require tariffs on all products to be eliminated. In accordance with the agreement, 90% of all tariff lines (Schedule A) are to be phased-out over a 5 to 10 year period, with longer periods granted to some economies. Another 7% of products deemed sensitive (Schedule B) will be phased out over a longer period, while 3% of lines (with a cap of 10% value of trade) can be placed on an exclusion list (Schedule C). While many regional economic groupings, including EAC, SACU and ECOWAS have submitted their Schedule A lists, the coverage of these lists is below 90% of tariff lines given delays in the finalization of the rules of origin.

Scenario (2) analyses the effects of tariff reductions in accordance with the Schedule A lists submitted by the EAC, SACU and ECOWAS. Figure 11 presents several indicators of the coverage of the Schedule A lists, including the share tariff lines covered, the share import value covered, the share import value already facing zero tariffs, and the share of tariff lines with tariffs of 35% and above that are covered.

Figure 11: Coverage of Schedule A lists



Source: Own calculations using Schedule A tariff offers at the HS8-10 digit level, combined with tariff line level import data obtained from Trade Map.

The Schedule A lists cover from 80% (EAC and SACU) to 90% (ECOWAS) of tariff lines. However, the coverage rate is inversely related to the tariff levels in all cases. For example, in the case of the EAC, only 20% of the tariff lines in the List of Sensitive items with tariffs rates of 35% or above are covered by Schedule A. For SACU and ECOWAS, the coverage rate of tariffs with 35% or higher tariffs is only 3% (SACU, Nigeria & Ghana).

What are the implications for Ugandan imports and exports? A cursory overview of the data shows that Schedule A items cover 77% of imports from SACU, but 58.3 percentage points of these already enter duty free. In contrast, tariff reductions under Schedule A offered to Ghana covers 97% of current imports, with almost all of this facing statutory tariffs of 25% (e.g. Gold in semi-manufactured form). However, as noted earlier, gold imports from Ghana have been exempted from paying customs duties. For imports from Nigeria, the coverage is 61% with just over half of these products already facing zero tariff barriers. The broad implication is that Schedule A offers modest improvements in market access for the sample of countries, with gains concentrated in few products for some countries (e.g. Gold from Ghana).

These preliminary findings are borne out by the simulation results of Scenario (2). Imports from SACU, Nigeria and Ghana rise by only $US 6.39 million, a fraction of the $US 31.50 million under Scenario (1) – see Table 12. Close to half of this increase arises from trade correction and diversion, resulting in a net increase in imports of $US 3.2 million (0.05% of total imports). The industry composition of the rise in imports is also affected, with imports of Transport equipment and Foodstuff substantially diminished. Schedule A retains tariffs on many products within these industries. Imports of Electrical machinery and Chemicals & plastics from the new partners now rise the most, but the value of the increases are low ($1.16 million – see Figure E1 of Appendix E). Border revenues fall by 0.05%. The main conclusion is that tariff reductions under Schedule A do little to enhance Uganda's participation in regional import trade.

Scenario (3) extends Scenario (1) by including the impact of reductions in import costs arising from improvement in customs management in response to the implementation of the Trade Facilitation Agreement. The expectation is that lower trade costs associated with improved

trade facilitation will have a far greater impact on intra-regional trade than tariff reductions, as has also been simulated by the World Bank (2020). The adverse effect of poor trade facilitation on Ugandan exports is also shown in the firm-level results earlier. In the simulations, lower trade costs by SACU, Nigeria, Ghana and Uganda apply to imports from all sources, not just those of the partner countries. Consequently, rising imports by these countries will cover a far broader range of countries than those in the FTA.

As shown in Table 12, the impact on Ugandan imports is considerable. Imports from SACU, Nigeria, and Ghana rise by almost twice that of Scenario 1 leading to a total increase from these countries of 17.8% – see Figure E2 of Appendix E for industry composition. Imports from other countries, including the EAC and COMESA, rise by a total of $US 314 million, resulting in a combined 5.7% increase in total imports, compared to the 0.24% from Scenario 1.[37]

Several other scenarios were also simulated. First, to test the sensitivity of the results to the choice of import demand elasticity, additional simulations were run using a common elasticity of 2.5 and a lower elasticity of 1.388 that is equivalent to the mean elasticity for Uganda estimated by Ghodsi et al. (2016). Both simulations lead to larger increases in imports from SACU, Nigeria and Ghana (15.2% and 10.4%, respectively). A simulation using the applied statutory rates is also conducted. Imports from SACU, Nigeria and Ghana rise by a much higher 18.6%, reflecting the upward bias when using statutory as opposed to collection rates. A final scenario assuming full implementation of the AfCFTA by all African countries is also conducted. Total imports by Uganda increase by 0.34% (compared to 0.24% under Scenario 1), although this rises to just under 6% when assuming African countries also implement the TFA.

Government tax revenue

The effect of changes in trade flows on government revenue works through several channels. Customs revenues are lost on existing imports from the new FTA partners, as well as from the diversion of trade from the rest of the world to these countries. As shown in Table 12, scenario 1 results in a loss in customs revenue of $US 19.75 million, or 5.87% of initial revenue (see Table E2 in Appendix E for further details). Customs revenue, in general, makes up a relatively small share (20% in 2018/19) of total revenue from international trade, as the latter includes VAT, excise duties, petroleum duties and environmental taxes (see also de Melo and Regolo, 2014), and imports from the FTA are not exempted from these additional duties. This has two implications. Firstly, revenues from these additional duties are not lost from trade diversion – they are merely shifted from the rest of the world (including EAC and COMESA) to the new trade partners. Secondly, while rising imports through trade creation do not generate additional customs revenue, these imports do generate additional VAT, excise revenue, etc. These effects attenuate the loss in government revenue through lower customs duties.

As discussed, tariff reductions and import responses under scenario (2) are much lower than in scenario (1), as the Schedule A list retains tariffs on highly protected products. The implication is lower net revenue losses of $3.28 million (1.01% of total government revenue through taxes on international trade), in scenario (2). In scenario (3), lower trade costs from the TFA boost imports from all countries. The outcome is a rise in total customs and other associated taxes on international trade by 4.24%. The losses in tariff revenue from lower tariffs

[37] These estimates are more modest than those estimated by the World Bank (2020) using a CGE model. They estimate a 0.8% increase in imports assuming implementation of the AfCFTA by all member countries. This rises to 6.6% with reductions in non-tariff barriers and then to a high 24.5% with the additional implementation of the TFA. One reason for the particularly large response to the TFA by the World Bank (2020) is that they model reductions in both import and export costs arising from improved customs management. Our study only models reductions in import costs.

on imports from SACU, Nigeria, and Ghana are, therefore, more than offset by increases in revenue associated with rising aggregate imports.

Household consumer gains

Lower tariffs on consumer goods benefit households by reducing the price of goods they purchase. The size of the effect depends on what goods households consume, together with the extent of tariff reductions and the responsiveness of consumer prices to these tariff cuts. Poorer households, for example, spend higher shares of their income on goods, whereas the share of expenditure on services rises as household incomes increase. Poorer households also spend relatively high shares of their income on food products, but as their income increases, expenditure on goods shifts towards manufactured goods (Artuc et al., 2021).[38] These household income and expenditure characteristics also holds for Uganda. According to the Uganda National Household Survey 2019/20, households in Kampala spend 30.6% of their monthly expenditure on food and beverages (alcoholic and non-alcoholic), whereas households in the less wealthy Northern region spend 53.6% of their expenditure on these products.

To estimate the potential impact of the AfCFTA on household expenditure, we draw on the Household Impact of Tariff (HIT) database developed by Artuc et al. (2021), and used in an application to Uganda by Rauschendorfer (2020a).[39] This database contains detailed information on household expenditure, which allows us to calculate the consumer gains from tariff-induced price reductions across household income percentiles. We obtain the first-order short term effects of the simulated FTA between EAC, SACU, Nigeria and Ghana on Ugandan consumers by first computing the effect of tariff reductions on prices, and then calculating the change of a household's real income as the sum of the positive change of a household's consumption due to the price reduction.[40]

Figure 12 presents the consumer gains from the FTA under simulation 1, where tariffs on all partner products are eliminated, and simulation 2, where only tariffs on Schedule A products are removed. The gains are plotted against household income percentiles with the poorest households on the left hand side. The figure reveals two important findings. Firstly, the gains from full liberalisation under the FTA are sizeable and slightly progressive in that relatively poor households gain the most (as percentage of initial income). The bottom 10 percentiles of households experience increases in real income of 0.28% on average, whereas the gains for the top 10 percentiles of the income distribution are lower at 0.18% on average. The average consumer gain across all percentiles is 0.23%.

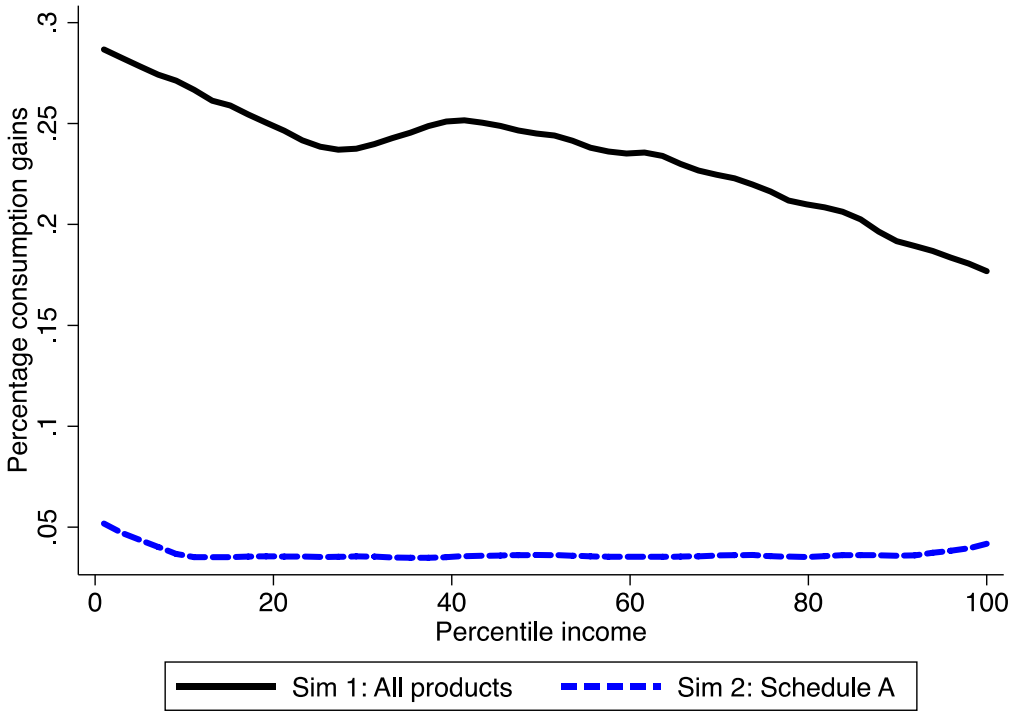
[38] Lower tariffs can also adversely affect household income by reducing the price of products they produce as farmers or through wages earned in the production process. The net welfare effect from lower tariffs depends on the relative strengths of the consumption and income effects. Artuc et al. (2021) provide information on income shares accrued from different activities. Allocating tariffs to these industries was difficult as it is not possible to identify whether the goods produced are intermediate or final goods. Our focus is therefore only on the consumption effects of lower tariffs. To calculate the consumer effects, we focus mainly on tariff reductions on consumer goods as defined by the US Bureau of Economic Analysis End-Use Classification System.

[39] The data for Uganda is based on the Uganda National Household Survey 2005/06. While levels of expenditure have changed substantially, the composition of expenditure has remained relatively stable. For example, average household expenditure on food and beverages in 2005/06 was 44.8% (as reported in Rauschendorfer (2020a)), in 2019/20 it had fallen marginally to 43.8% (UBOS, 2021: 103).

[40] We extended the Artuc et al. (2021) mapping between the HS4-digit trade classification and expenditure survey product categories to the HS6-digit level. All consumer goods are included. In general, intermediate inputs are excluded, with exceptions for some product categories (other cereals, cereals, chicken, vegetable and animal oils/fats, sugar, other staples) where intermediate goods are also consumed as final goods by households. Consumer and intermediate goods are defined according to the US Bureau of Economic Analysis End-Use Classification System. The calculations assume perfect pass-through of the tariff reductions to consumer prices. If the pass-through elasticity is less than one, the estimated consumer gains from tariff reductions will fall. We use import values from each country to calculate a weighted average tariff on imports.

Following the approach by Rauschendorfer (2020a), we can translate this gain into monetary values. Household monthly expenditure according to the Uganda National Household Survey 2019/20, is around 622 thousand Shillings.[41] The 0.23% gain from the FTA, translates into approximately 1459 Shilling gain per household per month, or an aggregate consumer gain to the economy of 13 billion Shillings per month.[42] The aggregate gains in household income will be lower as some households will experience reductions in income from sales of products experiencing price reductions. Nevertheless, the calculations illustrate sizeable gains to consumers from lower prices under the FTA.

Figure 12: Consumer gains from the FTA – Liberalisation of all goods vs. Schedule A goods[43]



Notes: Own calculations based on data obtained from Artuc et al. (2021) and changes in import weighted average tariff from simulation 1 and simulation 2.

The second feature of Figure 12 is the dramatic reduction in consumer gains if tariffs are only eliminated on products listed in the EAC Schedule A offer. The mean consumer gain for households falls from 0.23% to 0.04%. The implication is that not only is the Schedule A offer highly restrictive in terms of granting access to the new partners into Uganda, but it also eliminates most of the potential gains to consumers from the trade agreement. Under the Schedule A tariff offer by the EAC, high levels of protection remain on key products consumed by households.[44]

[41] According to the Uganda National Household Survey 2019/20, monthly per capita expenditure was 135 223 Shillings in 2019/20 (UBOS, 2021:102). The average household size is 4.6 implying an average household expenditure of 622 025 Shillings.

[42] The population in Uganda in 2019/20 is estimated at 40.9 million, which implies 8 891 304 households (based on average household size of 4.6). A monthly household gain of 1459 Shillings, therefore, results in an approximate gain for the nation of 13 billion Shillings per month.

[43] Collection rates were used to simulate the effects of full liberalization of all goods rather than applied rates. Using applied rates would result in consumption gains increasing significantly (from 0.23% to 0.47%). As such, our simulation results represent conservative estimations of the full liberalization effects of all goods under the AfCFTA.

[44] Excluded products include items such as tomatoes, rice, food preparations for infant use, and several cereals.

Exports

The SMART model developed for this paper also provides estimates of the impact of the trade agreements on Ugandan exports. These are derived from the foreign country import response to their tariff reductions. Of key interest for Uganda, are the direct increases in exports to SACU, Ghana and Nigeria, as well as the indirect negative effect on exports to the EAC.

Table 13 presents a summary of the impact of each scenario on Uganda's exports. Under Scenario (1), total exports to SACU, Nigeria and Ghana increase by $US 0.97 million. This low value contrasts starkly with the increase in imports ($US 31.5 million) from these regions in the same scenario. The reason, as discussed earlier, is that Uganda's exports to these countries are low, and, particularly in the case of SACU, these existing exports already face low tariff barriers (see the very high share of Uganda's exports to SACU entering duty free in Figure 11). In percentage terms, however, at 9.45%, the increase in exports is similar to that of imports.

Table E1 in Appendix E presents the top 5 products (at HS6-digit level) experiencing rising export values to SACU, Nigeria and Ghana under Scenario (1). Agriculture and foods products make up all the top 5 exports to SACU, with exports of smoking tobacco increasing the most. Increases in exports to Nigeria are concentrated in tobacco and machinery for preparing tobacco, while for Ghana, Ugandan exports increase the most in metal products (metal photo/picture frames, reinforced pipes, and threaded screws and bolts) and chemicals (hydroxybenzene). The product level results also highlight the concentrated nature of the gains to Ugandan exports. The top 5 products experiencing increases in export value under Scenario (1) make up over 90% of the total increase in Ugandan exports to SACU and Nigeria.

Table 13: Summary of liberalization scenario results on Ugandan exports

	Scenario 1: Liberalisation	**Scenario 2: Schedule A**	**Scenario 3: Liberalisation + TFA**
Change in exports to new partners ($US mill)	0.97	0.41	1.87
SACU	*0.70*	*0.15*	*1.40*
Nigeria	*0.26*	*0.24*	*0.45*
Ghana	*0.01*	*0.01*	*0.02*
% Change in exports to new partners	9.45	3.94	18.16
Change in exports to EAC ($US mill)	-3.10	-0.37	89.25
% Change in exports to EAC	-0.39	-0.05	11.11
Change in total exports ($US mill)	-2.12	0.04	91.12
% Change in total exports	-0.07	0.00	2.95

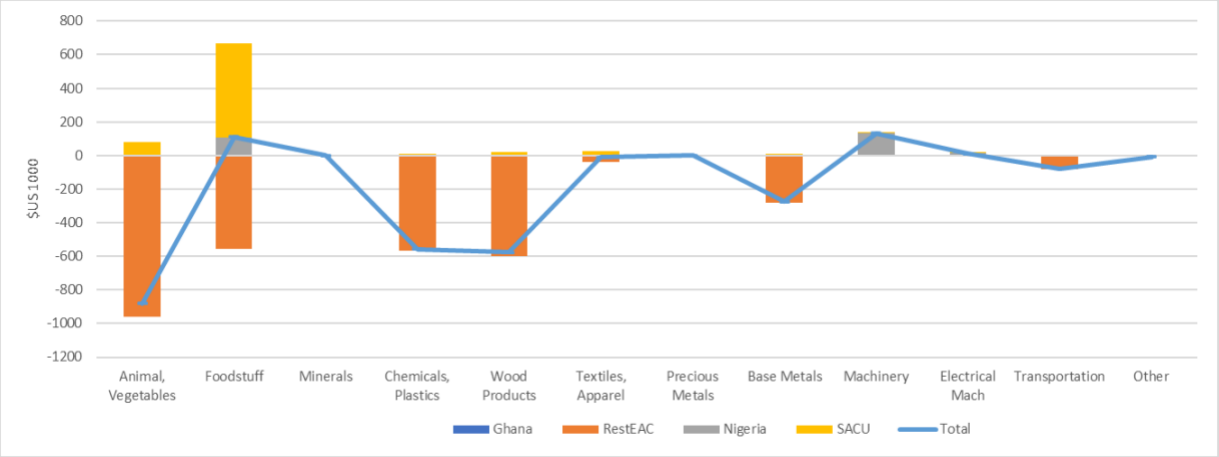
Source: Own calculations using SMART model. Uganda export values are derived from the destination country import response to their tariff reductions.

The final two rows of Table 13 present the *total* impact on Uganda's exports. Total exports actually fall by $US 2.12 million (0.07% of total exports) in Scenario (1). The reason is the decline in exports to the EAC as exporters in SACU, Ghana and Nigeria displace Ugandan exports in the customs union by a value of $US 3.1 million. The negative impact on Ugandan exports to the EAC is particularly strong given the prominence of the region as an export destination, as well as the concentration of Uganda's exports in products where the common external tariff is high (Table 4). This can also be seen in Scenario (2) results, where the EAC retains tariffs on relatively protected sensitive products in the Schedule A list. In that scenario, total exports to the EAC only fall by $US 0.37, with this loss offset by increases in exports to SACU, Ghana and Nigeria. Aggregate exports for Uganda, therefore, don't change under Scenario (2). However, exports to SACU, Ghana and Nigeria fall substantially in Scenario (2) compared to Scenario (1) (from 9.45% to 3.94%). The implication is that the Schedule A lists

of SACU, Ghana and Nigeria exclude key export products of interest to Uganda. The export benefits to Uganda from the FTA are significantly reduced when considering only the Schedule A lists.

Figure 13 plots a bar graph of the changes in exports by industry to the different destinations for Scenario (1). The horizontal blue line denotes the net export effect. Total exports fall for most of the industries, with relatively large decreases in Animal & Vegetable products, Chemicals & Plastics and Wood products. These declines are driven by the displacement of Uganda's exports of these products to the EAC by SACU. The increase in exports to SACU, Ghana and Nigeria are unable to offset these losses. The exceptions are Foodstuff where exports of tobacco-related products to SACU and Nigeria grow (see Table E1 in Appendix E), and Machinery (mainly for processing tobacco).

Figure 13: Scenario 1 impact on Ugandan exports, $US 1000

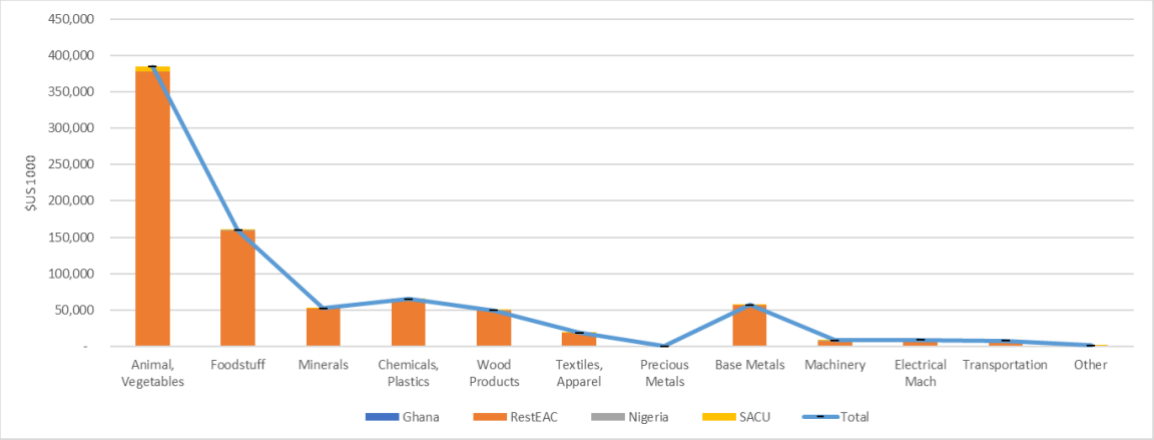


Source: Own calculations using SMART model

It is useful to contrast the results of Scenario (3) presented in Table 13 and Figure 14. The implementation of the TFA has a substantial additional impact on Uganda's export performance, with total exports rising for all industries. Total exports to SACU, Ghana and Nigeria rise by 18.2%. Exports to other EAC members also increase on aggregate by 11%, thus offsetting the negative displacement effect of tariff reductions shown in Scenario (1). The increase in export value to the EAC dwarfs the increase in value to SACU, Ghana and Nigeria in all industries (Figure 14). This outcome is mainly driven by the high initial values of Ugandan exports to the EAC.[45]

[45] One consideration in these estimates, is that the TFA leads to the same reduction in costs for internal trade as imports from outside the region. The reductions in intra-EAC trade costs may be lower than extra-regional trade costs given the implementation of several initiatives to reduce trade barriers within the customs union.

Figure 14: Scenario 3 impact on Ugandan exports, $US 1000

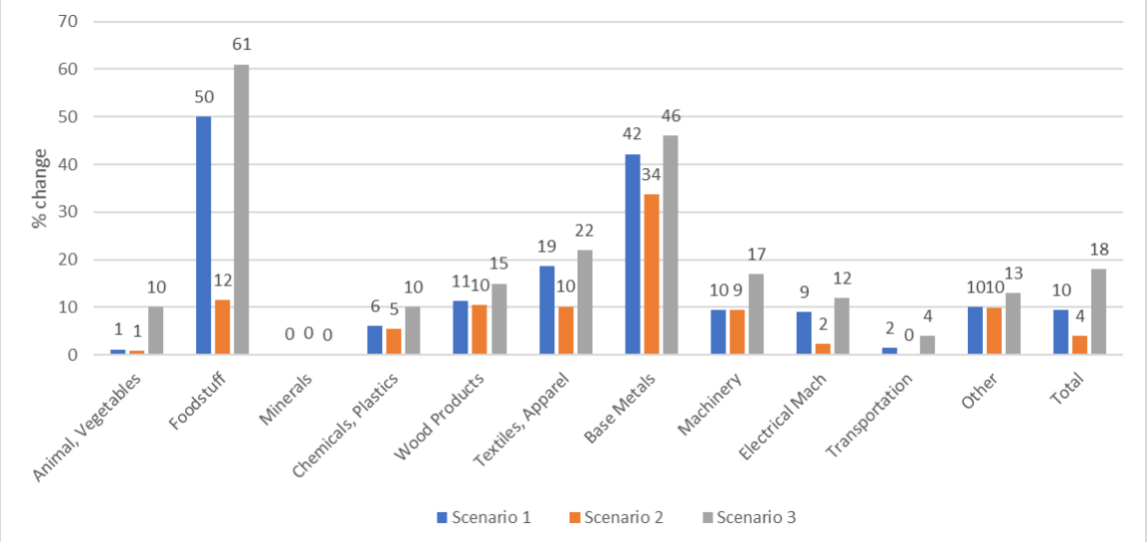


Source: Own calculations using SMART model

Figure 15 therefore presents the percentage change in Ugandan exports to SACU, Ghana and Nigeria for the different scenarios. Under Scenario (1) we see increases in Ugandan exports across most industries. While the strongest increases in exports to the new partners occur in the food and base metals industries, exports also increase by 10% or more in textiles & clothing, wood products and machinery industries. The trade agreement is therefore effective in growing Uganda's exports of non-traditional export products to new partners.

Looking at the total bars on the right of the figure, we see substantially reduced increases in Ugandan exports to the new partners under Scenario (2) compared to Scenario (1), and much larger increases in export values (18%) under Scenario (3). The figure also reveals the industries where the Schedule A list offered by SACU, Ghana and Nigeria is most binding for Ugandan exports. These are mainly food products where the percentage increase in export value falls from 50% to 12% and, to a lesser extent, textiles & apparel, base metals and electrical machinery. Finally, Figure 15 shows how improvements in the logistics performance in SACU, Ghana and Nigeria dramatically increase Ugandan exports to these countries across all industries.

Figure 15: Comparison of percentage increase in Ugandan combined exports to SACU, Ghana and Nigeria for different scenarios



Source: Own calculations using SMART model. Precious metals are excluded as the Ugandan export values excluding gold are very low.

Conclusions

This paper assesses some of the trade and revenue implications of the implementation of the AfCFTA for Uganda using a combination of product- and firm-level trade data and an application of a partial equilibrium model simulation of tariff reductions on goods trade between the EAC, the South African Customs Union, Nigeria and Ghana. The study shows that while Uganda has made significant progress in growing and diversifying its export bundle, exports of goods as a share of GDP are not materially higher than they were 25 years ago. In contrast, services exports approximately doubled as a share of GDP from around 3% in 2000 to 6% in 2018. Uganda's exports are highly regionalised, with more than half of all exports of goods remaining on the continent. Within Africa, much of Uganda's exports are concentrated within the EAC (78% share of exports to Africa, 40% of total exports in 2018) and COMESA (8% of total exports) where FTAs already exist. The share of Uganda's exports to other African countries such as SACU (largely South Africa), Nigeria and Ghana is much lower, jointly making up less than 2% of total export value.

The African Continental Free Trade Area (AfCFTA) presents a promising offer of continent-wide market access for Ugandan firms. Tariff barriers in African markets are relatively high and do appear to constrain Uganda's exports into the rest of the continent. However, high tariffs are not the only barrier to expanding Uganda's exports to other African markets. Poor logistics performance across the continent also limits the aggregate value of exports and the number of Ugandan firms exporting to the region. Uganda's own logistics performance indicators are poor, with the country ranking low (102nd out of 160 countries) in terms of the World Bank Logistics Performance Indicators. By comparison, Rwanda was ranked 57th. Ugandan exporters are also constrained by non tariff barriers (NTBs) such as the unilaterally imposed import bans by Kenya on Ugandan dairy, maize and poultry on the grounds that Ugandan exports did not meet quality standards.

The gains from the AfCFTA are not guaranteed. The high share of Uganda's exports already destined for the continent reflect a reduced scope to further expand exports into the region and the limitations of existing trade agreements in assisting Ugandan exports to reach markets outside Africa. The AfCFTA also comes with increased competition for Uganda's exports, particularly within the EAC market. The exporters most likely to be challenged by the increased competition in the EAC market are small exporters whose export relationships with the EAC are characterised by high entry/exit rates (54-59%) and low survival rates (23% first year survival rate of new entrants).

Our partial equilibrium modelling of a FTA between the EAC, SACU, Nigeria and Ghana estimates a net reduction in exports of around $2 million per year if tariff reductions are the sole instrument of the AfCFTA. However, this result reverses if liberalisation is accompanied by a program of trade facilitation measures, with exports predicted to increase by 3% ($91 million), accompanied by higher customs revenue.

Several policy implications follow from the analysis.

To maximise gains from the AfCFTA, Uganda should push hard for the establishment of regional institutions and processes that reduce the cost of intra-regional trade. These are particularly important for Uganda given its geography and remoteness from international markets. The institutional framework established under the AfCFTA presents a useful blueprint for the coordination of regional infrastructure and trade facilitation policies to reduce trade costs. Lowering trade costs is critical to enhance Uganda's regional trade flows and integration into regional supply networks. Currently, EAC partners have proposed varying levels of commitment under the WTO's Trade Facilitation Agreement (which the TFA provisions in the AfCFTA are based on). As a first step, working with regional partners to agree a common EAC

position on the TFA would be beneficial – it is in Uganda's interests for these common commitments to be as ambitious as possible.

In addition, Uganda should remain cognizant of the impending implementation of the AfCFTA in its negotiations with EAC partners regarding the Common External Tariff. Uganda is backing a proposal to introduce a new 35% tariff band to the EAC CET (Frazer and Rauschendorfer, 2019). As this paper has discussed, Uganda's current export basket is dominated by products which are traded tariff-free with EAC partners under protection from high CET rates. Helping Ugandan exporters to prepare for competition with other African exporters upon implementation of the AfCFTA requires gradual reductions in the level of protection they benefit from, rather than increasing protection from competition. Increasing EAC protection, either by increasing the CET rates which apply to different bands or by adding a 35% band, will only worsen the impact of preference erosion under the AfCFTA for Ugandan exporters, and will also lead to a costly diversion of imports away from relatively efficient global suppliers.

The rising importance of services in Uganda's export basket makes concluding negotiations on the services component of the AfCFTA more pressing. While trade in services is not included in our simulation of potential impacts, the growth of services as a share of total exports suggests that Uganda is well-placed to benefit from liberalisation in services trade. More competitive services sectors, especially transportation, telecommunications, and retail distribution have been found to complement productivity and export performance of firms in agriculture and manufacturing in EAC countries (Hoekman and Shepherd, 2015). Uganda should pay close attention to AfCFTA negotiations on the libearlisation of trade in services – these protocols have the potential to benefit not only firms operating in the services sector, but also the producers of merchandise goods which use services as an input to production.

Concluding negotiations on rules of origin and the resolution of NTBs is critical. Rules of origin are important in any regional trade agreement with a common external tariff, as they prevent tariff leakage through imports from non-preference countries being repackaged in a preference country and exported tariff-free. Rules of origin usually specify a minimum percentage of value added in the domestic market in order to qualify for tariff-free market access. However, if rules of origin are poorly designed, the compliance costs of certifying local content requirements can outweigh the benefits of tariff-free market access. For example, some retailers operating in Southern Africa opt to forego South African Development Community preferential tariffs because they deem the cost of administering rules of origin documentation too costly (Gillson & Charalambides, 2012). This clearly undermines the benefit of a free trade agreement – it is critical that negotiations on the operation of rules of origin are concluded to avoid this outcome.

Harmonisation of product quality standards is an important part of any regional trade agreement, as standards promote trust and facilitate trade – but standards can equally be used as a tool for protectionism, particularly when they are set without reference to the local context. For example, the EAC's quality standards for dairy products are adopted from the FAO's Codex Alimentarius, which reflect Western consumption patterns, and are very expensive to meet for most regional producers. These standards provide an opportunity for governments to erect NTBs by blocking imports which do not comply, without providing any material benefit to food safety, since the vast majority of milk is boiled before consumption in East Africa (Jensen & Keyser, 2012). To maximise the economic gains from the AfCFTA, negotiators should avoid the wholesale import of Western quality standards, particularly where these are very expensive for regional producers to comply with, and not reflective of local consumption patterns. In addition, Uganda should support the AfCFTA's NTB provisions, which would establish a mechanism for the identification, categorisation and elimination of NTBs.

In the short term, Uganda can adopt unilateral measures to reduce the cost of trading across borders. Approximately 70% of procedural hurdles reported by exporters are caused by domestic institutions (ITC, 2018), providing ample scope to improve export performance by improving administration of export procedures and cutting unnecessary red tape. Recommendations from the OECD's trade facilitation index provide a blueprint for reducing trade costs and improving the speed of customs procedures. These include improving the availability of information on customs procedures and fees and charges, as well as the digitalisation and automation of certain processes (OECD, 2019). Uganda's National Export Development Strategy should be revised and implemented to guide these efforts.

If trade facilitation issues are resolved, the AfCFTA provides an opportunity to significantly expand exports to new markets. To fully exploit these opportunities, Uganda should systematically evaluate new product and market opportunities, leveraging rich administrative data and newly-developed analytical tools[46] to identify the most promising product-country combinations. This data-driven approach can also be used to identify market opportunities for specific commodities that Government has identified as a priority for development, for example under the Parish Development Model. The results of this exercise can then inform the efforts of export promotion agencies to promote target products in these new markets.

Lastly, the AfCFTA should not be seen as a substitute for policies to enhance access by exporters into international markets. Exporters that are able to access international markets are more likely to survive and grow. More importantly, the African market is constrained in economic size. Greater market access through the AfCFTA will raise exports, but largely through increasing the number of firms and products exported, rather than through increases in the value of export per firm. A key constraint to Uganda's export performance is a shortage of very large firms that account for high shares of export value, as is found in other countries. Improved access to larger international markets through preferential agreements, marketing, and investment facilitation, will be required for the emergence of these super exporters.

[46] For example, the Decision Support Model allows countries to identify target products and markets which currently demand these products, as well as estimating the value of potential additional exports of these products, accounting for trade costs and tariffs.

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Appendix A: Product-level trade data

Table A1: Uganda's top 10 exported products to destinations (HS6), 2017/2018

EAC			SACU			NIGERIA			GHANA			R_World	
	Share (%)	Tariff		Share (%)	Tariff		Share (%)	Tariff		Share (%)	Tariff		Share (%)
Corn Seed	7.5	25	Coffee	50.5	0.0	Tobacco	42.7	5.0	Freezers	25.4	12.5	Gold, semi-manufactured	34.6
Black Tea	6.4	25	Unrooted cuttings and slips	10.0	0	Water-pipe tobacco	19.2	20	Parts and accessories of recorders	8.6	10	Coffee	28.7
Leguminous Vegetables	5.1	25	Molds for metal	2.6	0	Mechanical Shovels and Excavators	13.6	5	Sinks and washbasins	7.0	20	Fish fillets. Nile perch	4.6
Refined Sugar	5.0	60	Animal products	2.4	0	Electric generating sets	7.9	5	Table kitchen articles	6.8	20	Cocoa beans	4.4
Tobacco	4.4	25	Cocoa beans	2.3	0	Lead-acid accumulators	5.1	20	Furniture of plastics	6.4	20	Fish heads. tails and maws	3.9
Electrical energy	4.2	0	Vanilla. crushed or ground	2.2	0	Other accumulators	1.7	20	Domestic appliances; non-electric	6.3	20	Nile perch	2.5
Milk/Cream	4.2	60	Parts of Aeroplanes	2.2	0	Mixes and doughs	1.5	10	Toasters	5.8	20	Cotton. carded or combed	2.5
Animal Feed	3.3	5	Cruise ships. excursion boats	1.9	0	Lamps	1.0	20	Wooden furniture	4.9	20	Unrooted cuttings and slips	2.3
Palm Oil	2.3	16	Ethyl alcohol and other spirits	1.8	80.7	Indicator panels	0.8	10	Crushing or grinding machines	3.0	5	Roses. grafted or Not	1.8
Wheat Bran	2.3	10	Worn clothing	1.3	193.9	Hides and skins	0.8	5	Rubber surgical gloves	2.3	0	Full grains. unsplit; grain split	1.8
Total share	44.7			77.2			94.4			76.6			87.1
Total HS6-digit products exported (out of 2322)	1982			138			22			38			704

Source: Own calculations using WITS UNCOMTRADE data for 2017 & 2018.

Table: A2: Uganda's top 10 imported products from destinations (HS6), 2017/2018

EAC			SACU			NIGERIA			Ghana			R_World	
	Share (%)	Tariff		Share (%)	Tariff		Share (%)	Tariff		Share (%)	Tariff		Share (%)
Gold, semi-manufactured	15.8	25	Flat-rolled products of iron or non-alloy steel	20.6	0	Sanitary towels (pads) and tampon	13.0	15.7	Gold, semi-manufactured	84.0	25	Petrol, Oil	12.9
Petrol, Oil	5.1	0	Vehicles	6.4	25	Parts of Chainsaws	12.1	0	Passenger Motor Vehicles	2.1	25	Light oils and preparations	9.2
Salt	3.5	25	Odoriferous substances and mixtures	6.4	10	Wigs, False Beards, Eyebrows	6.3	25	Cleaning Material	1.3	0	Medicaments	3.9
Iron or non-alloy steel	3.2	35	Semifinished Products of Iron or Nonalloy Steel	5.5	0	Electric Conductors	6.1	25	Drilling or morticing machines	1.2	0	Crude oil	3.7
Medicaments	2.6	0	Bars and Rods, hot-rolled	4.8	0	Worn clothing	4.3	35	Vehicles	0.7	10	Wheat and Meslin	3.0
Flat-rolled Iron Or Non-alloy Steel	2.2	25	Electricity meters	4.5	0	Non-Wired Glass	4.0	10	Static Converters	0.5	0	Passenger Motor Vehicles	2.2
Cement	2.1	25	Metals; gold, semi-manufactured	3.3	25	Lightning arresters	3.8	0	Wallpaper and similar wall covering	0.5	25	Worn clothing	1.5
Glass containers	1.8	25	Refined Sugar	2.2	100	Ginger	3.2	25	Vacuum Cleaners	0.5	25	Flat-rolled iron or non-alloy steel	1.4
Flat, rolled, products-Plated or coated with aluminium	1.7	35	Undenatured ethyl alcohol	1.5	25	Nonrefractory Surfacing	2.8	25	Seats (non-metal and wood)	0.5	35	Cement clinkers	1.3
Semi-milled or wholly milled Rice	1.6	75	Paper and paperboard	1.5	25	Smart cards	2.8	25	Wood	0.4	10	Polyethylene	1.2
Total share	39.6			56.8			58.4			91.7			40.3
Total HS6-digit products imported (out of 4125 total)		2120			1998			323			62		3946

Source: Own calculations using WITS UNCOMTRADE data for 2017 & 2018.

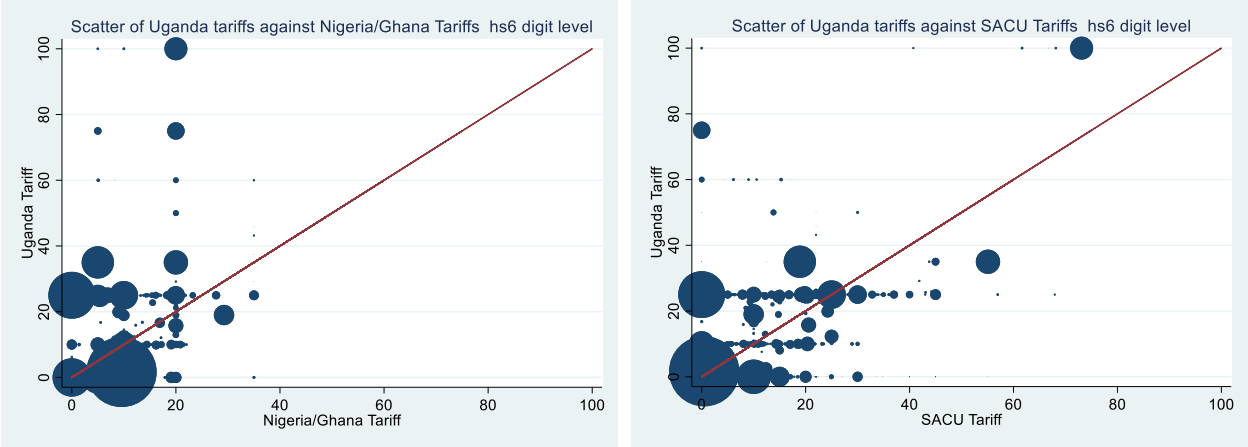
Appendix B: Tariff measures

Table B1: Pairwise correlation coefficient of weighted average tariff rates

	Uganda + SoA	EAC CET	SACU	Nigeria/Ghana
Uganda + SoA	1.00			
EAC CET	0.98	1.00		
SACU	0.46	0.47	1.00	
Nigeria/Ghana	0.60	0.60	0.48	1.00

Source: Own calculations using weighted average tariff rates at the HS 6-digit level. See the notes to Table 3 for full details regarding the source of the data. A total of 5374 HS 6-digit tariff lines for which there is a match at the 6-digit level are included. This excludes several HS98 & 99 products for which SACU has tariffs.

Figure B1: Comparison of Uganda tariffs against Nigeria/Ghana and SACU at HS 6-digit level, 2018/19



Source: Own calculations using weighted average tariff rates at the HS 6-digit level derived from statutory MFN rates at the HS 8- and 10-digit level together with import data from TradeMap. The size of circle reflects value of Uganda imports (total imports). The more similar are tariff structures, the more dots will lie on the 45% line.

Table B2: Import weighted average statutory MFN tariffs and preference margins, inclusive of SoA, on imports by Uganda from partner countries (columns), by Section heading, 2018

		Non-FTA partners		EAC preference margin	
		Statutory MFN rate	Collection rate	Statutory MFN rate	Collection rate
hs2 codes	HS section description				
01–15	Animal and Vegetable Products	14.4	11.2	39.4	27.7
16–24	Foodstuff (Beverages, Vinegar, Tobacco, etc.)	53.1	13.5	27.8	26.0
25–27	Mineral Products (incl. Hydrocarbons)	1.6	0.6	9.7	9.7
28–40	Chemicals and Plastics	3.8	2.7	13.4	10.5
44–49, 94	Wood (incl. Paper, Furniture)	17.1	10.3	27.1	16.6
41–43, 50–67	Textiles, Apparel, Footwear & Leather	24.7	23.7	17.5	16.7
71	Precious Metals (gold)	25.0	0.2	25.0	0.0
72–83	Base Metal and Articles Thereof	5.7	3.7	25.6	20.1
84, 91–92	Mechanical Machinery	2.4	1.8	1.9	1.1
85, 90	Electrical Machinery	6.4	3.9	14.4	9.5
86–89	Transportation Vehicles	16.2	12.6	12.3	10.8
68–70, 93, 95-99	Other	20.6	19.6	34.2	22.7
	By end-use				
	Intermediate	6.2	3.8	20.8	7.8
	Capital	4.1	3.2	10.5	8.8
	Consumer	24.8	15.4	30.2	25.3
	Vehicles	24.7	21.9	25.0	20.0
	Other	24.8	1.5	25.0	25.0
	Total	9.0	5.8	22.8	12.3
	Import value (US$ mill)	5683.0	5683.0	782.8	782.8

Notes: Products are categorized according to the Harmonised System Section headings, and according to the BEC end-use classification. Stays of Application duties are included. Import values are used as weights.

Appendix C: Overview and manipulations of transaction data

Detailed transaction data was obtained from the Bank of Uganda (BoU) covering the period 2010 to 2019. This data covered each transaction by a trader/firm that exported, imported or transited goods through Uganda. The data contains detailed information on the date, product (at HS 8-digit level), the value, the quantity, the port of entry/exit, customs and other revenues (incl. VAT) as well as an anonymized identity code for the trading firm. The data was downloaded from the ASYCUDA customs system. Exports and imports were defined using the declaration type code. Exports cover direct exports (EX1), Bonded exports for easily consumed products (EX8) and a category ES1: Exports. Imports comprise direct importation for home consumption (IM1) and import for home consumption (PP4 & EF4). Goods transiting through Uganda, imports into warehouses, temporary imports, re-imports and re-exports are excluded.

Prior to analysis, the quality and consistency of the data was assessed relative to trade data for Uganda obtained from the Bank of Uganda and UNComtrade.[47] Several data issues emerged that informed the data cleaning process. First, the transaction data contained peaks in 2014 and 2016 for exports and 2014 for imports. Closer inspection revealed that these peaks were frequently driven by transactions where the unit values were extremely high (in billions in some cases), with repeated transactions of equivalent value. For example, the export value Cosmetic and toilet preparations; n.e.c. (HS3304099) by one firm made up 35% of the total value of exports reported in 2016. The unit value of this product was 30.4 million Uganda Shillings (USh) compared to the average value of around USh10500. In 2014, the exports of Cocoa beans, whole or broken, raw or roasted (HS 18010000) by one firm accounted for 27.5% of the total export value. The unit values of the transactions exceeded USh750 000 compared to a median of USh7300. Finally, exports of Coffee, not roasted, not decaffeinated (HS090111000) in 2014 by one firm over two equivalent transactions on the same day, made up 14% of the total export value. The unit values exceeded USh 49 million.

Second, a closer analysis of the export data revealed a very high export share made up of HS 49070090, which covers 'Other' products in the HS 4907 category "*Unused postage, revenue or similar stamps of current or new issue in the country in which they have, or will have, a recognised face value; stamp-impressed paper; bank-notes; cheque forms; stock, share or bond certificates and similar documents of title*". Exports of this product averaged over a 1 billion US dollars per year, or equivalently 30% of the total transaction-based export value each year (42% if compared to the BoU export data, excluding informal trade). One concern was that this line-item was reflected trade in bank notes that were valued at face value, rather than the transaction value of the printed paper, as recommended under the International Merchandise Trade Statistics Compilers Manual (UN, 2010). Gross export data from UNComtrade, that matches the BoU export data, show an average export of only US$7 million over the period.

Third, the firm identity is missing for several export transactions. On average, these firms account for 7% of the total transaction-based export value across years, but the share exceeds 11% in 2011, 2017 & 2018.

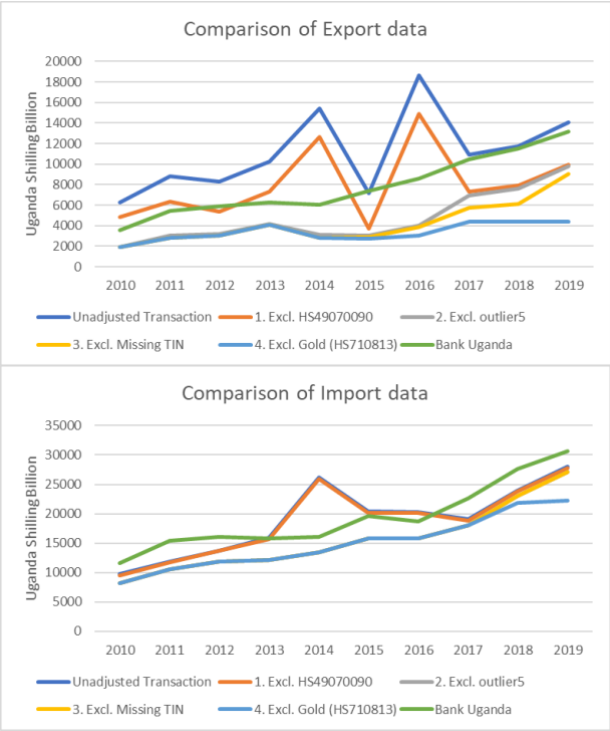
Finally, gold (HS 710813) rose dramatically as a share of Ugandan exports, as well as imports from 2016. For example, according to BoU statistics, gold rose from 2% of formal exports in 2015 to 35% in 2019. Gold exports, as reported in the transaction data, follows that of the BoU very closely. Reported imports of gold, according to UNComtrade data and the transaction data, suddenly rose from close to zero to US$330 million in 2018 and then to US$1312 in 2019; a value in excess of the export value in that year. One explanation for the sudden increase is the opening of Africa Gold Refinery in Uganda in

[47] The data were first cleaned for transactions that duplicated the date (year, month, day), firm identifier, HS 8 -digit code, trade value, weight, and entry point into the EAC.

2016. The gold refineries, however, appear to source much of their gold from regional countries, including Democratic Republic of Congo.[48]

Representations of the sequential adjustment of the export and import data are presented in Figure C1 below.

Figure C1: Comparison of transaction data and outcomes of data cleaning



Source: Own calculations using Uganda Transaction data and Bank of Uganda data. The export transaction data will differ from the Bank of Uganda values as it excludes re-exports.

[48] https://www.engineeringnews.co.za/article/uganda-gold-exports-more-than-doubled-to-12bn-last-year-2020-03-11

Appendix D: Exporter characteristics and dynamics

Table D1: Firm export performance and destination characteristics

VARIABLES	(1) Trade value	(2) Number of firms	(3) Mean trade per firm	(4) Mean trade per transaction	(5) Mean number transactions per firm	(6) Total number transactions
Dummy EAC	3.347**	2.067**	1.280+	0.893	0.386*	2.454**
	(1.070)	(0.467)	(0.772)	(0.668)	(0.182)	(0.558)
Dummy COMESA	1.375	0.794	0.581	0.521	0.060	0.854
	(0.891)	(0.544)	(0.477)	(0.447)	(0.119)	(0.651)
Ln(distance)	-2.172**	-1.065**	-1.107**	-0.964**	-0.143**	-1.208**
	(0.382)	(0.151)	(0.293)	(0.283)	(0.043)	(0.173)
Ln(GDP)	0.874**	0.413**	0.461**	0.455**	0.006	0.419**
	(0.130)	(0.057)	(0.093)	(0.091)	(0.013)	(0.064)
Common language	-0.282	0.243	-0.525+	-0.618*	0.093*	0.336
	(0.431)	(0.211)	(0.281)	(0.269)	(0.045)	(0.242)
Common colony	1.277**	0.114	1.163**	1.218**	-0.055	0.060
	(0.448)	(0.197)	(0.318)	(0.310)	(0.044)	(0.226)
Logistics performance	1.037**	0.447**	0.590**	0.571**	0.019	0.466**
	(0.291)	(0.111)	(0.211)	(0.207)	(0.024)	(0.119)
Applied tariff	-0.950	-0.011	-0.939*	-0.899*	-0.041	-0.051
	(0.609)	(0.254)	(0.402)	(0.359)	(0.081)	(0.320)
Constant	-5.779	0.237	-6.017+	-7.255*	1.239**	1.476
	(4.449)	(1.784)	(3.213)	(3.084)	(0.442)	(1.993)
Observations	1,072	1,072	1,072	1,072	1,072	1,072
Adjusted R2	0.510	0.626	0.373	0.351	0.234	0.600
F	24.63	32.19	17.86	16.86	11.94	35.58

Notes: Period covers 2010-2019. Robust standard errors clustered at the destination level in parentheses. ** p<0.01, * p<0.05, + p<0.1.

The data only includes observations with positive trade values. On average, 26% of partner trade values are zero. Year fixed effects are included in all regressions.

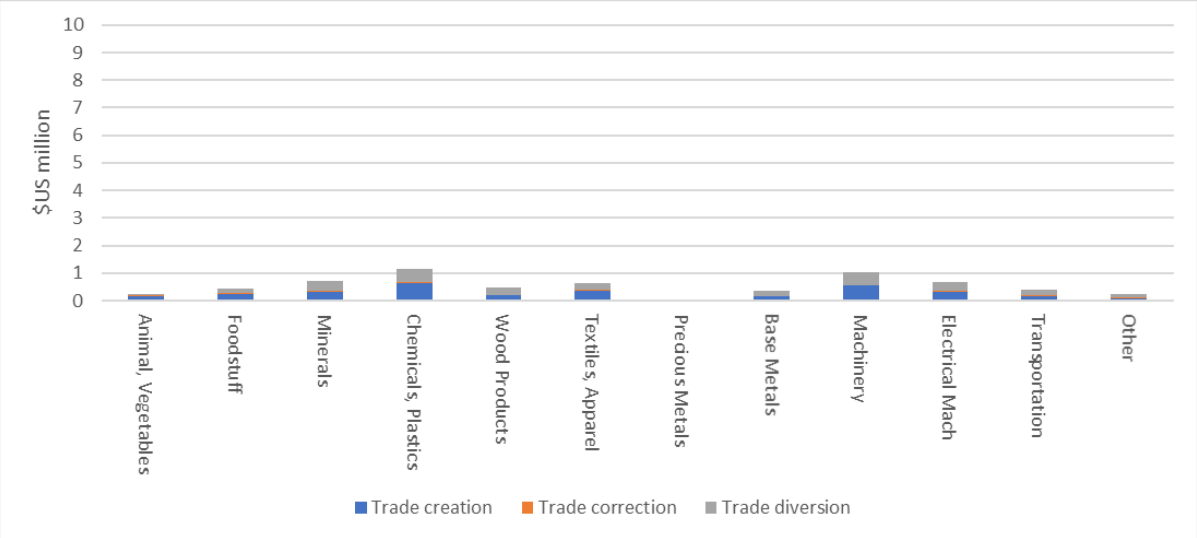
Appendix E: SMART Model results

Table E1: Top 5 products experiencing rising import and export trade with SACU, Nigeria and Ghana: Scenario (1), $US 1000.

HS code	Description	Ghana	Nigeria	SACU	HS code	Description	Ghana	Nigeria	SACU
	Imports					***Exports***			
170199	Sugar			2239	060313	Fresh Cut Orchids and Buds	1.0		
220421	Wine			1277	071333	Kidney Beans & White Pea Beans			18.9
440799	Nonconiferous Wood	4			120721	Cotton Seeds			19.9
480256	Uncoated paper			1492	130219	Vegetable Sap and Extracts			28.1
520811	Fabrics, more than 85% cotton	3			240110	Tobacco, not Stemmed		104.1	
521029	Fabrics, less than 85% cotton	3			240120	Tobacco, stemmed			49.4
551449	Woven fabrics of synthetic fibres	2			240319	Smoking Tobacco			515.9
630900	Worn Clothing		16		290711	Phenol (hydroxybenzene)	1.1		
670419	Wigs, False Beards, Eyebrows, etc.		17		400941	Reinforced Pipe	0.6		
700510	Glass sheets		13		731815	Threaded Screws and Bolts	0.6		
852352	Smart cards		11		830630	Metal Photo/Picture Frames	1.3		
870323	Passenger Motor Vehicles, Petrol			1236	842951	Mechanical Front-end Loaders		33.5	
870333	Passenger Motor Vehicles, diesel	47			847810	Machinery for Preparing Tobacco		96.2	
870421	Trucks, not over 5 Metric Tons			7428	852910	Antennas and Antenna Reflectors		8.7	
961900	Sanitary towels, tampons, baby diapers		21		854449	Insulated Electric Conductors		5.0	
Total top 5		59	78	13672			5	247	632
Total effect		69	168	31261			11	257	704
Share top 5		85	47	44			40	96	90

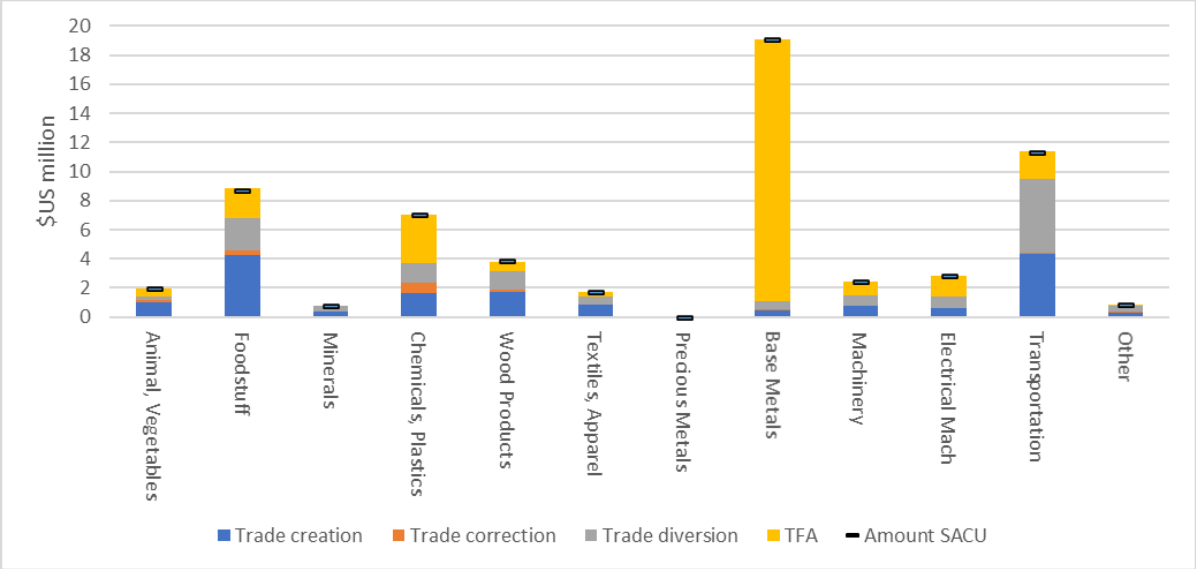
Source: Smart simulation model.

Figure E1: Impact of Scenario 2 on Uganda imports from SACU, Nigeria and Ghana ($US millions)



Source: Own calculations using SMART model based on collection rates for Uganda obtained from Uganda Revenue Authorities, and trade data obtained from TRAINS for 2018 or nearest year.

Figure E2: Impact of Scenario 3 on Uganda imports from SACU, Nigeria and Ghana ($US millions)



Source: Own calculations using SMART model based on collection rates for Uganda obtained from Uganda Revenue Authorities, and trade data obtained from TRAINS for 2018 or nearest year.

Table E2: Change in international tax revenue, $US million

	Customs	VAT	Environment tax	Withholding tax	Excise	Total
Scenario 1: Liberalisation	-19.75	-0.02	0.24	0.39	2.25	-16.82
Scenario 2: Schedule A	-3.42	-0.04	0.02	0.07	0.01	-3.28
Scenario 3: Liberalisation + TFA	0.74	49.56	4.16	6.96	8.81	70.32

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