



Trade and Welfare Effects of EU–EAC Economic Partnership

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Abstract

Tanzania is at a crossroad, either to sign or not to sign the EU–EAC economic partnership agreement (EPA) deal. Fear of the unknown (potential losses) and uncertain benefits continue to delay the signing, ratification, and implementation of trade and investment agreements in many countries, hampering meaningful regional and global integration. Applying a suitably calibrated and empirically tested partial equilibrium framework, we examine the trade, revenue, and welfare effects of Tanzania signing, ratifying, and implementing the EU–EAC EPA deal. Focusing mainly on the products for which the EU is the dominant supplier, the results suggest that EPA deal will increase the imports from EU markets by 4% under full and 3 % under partial liberalization (the effects more than double when we allow for all products). However, the partial equilibrium analysis shows that this happens at the expense of short-run adjustment costs in terms of revenue and welfare loss. The revenue loss as a percentage of the total import duty revenue under full liberation (allowing for current imports, consumption and trade creation, and diversion effects) is expected to be 23 % in 2020; which is equivalent to 2% of the total revenue, to 1% of total government budget and to 0.1 % as proportion to GDP. Though small in magnitude, in short run it is suggested that Tanzania will face welfare losses as consumers tend to gain from cheap imports (as a results of trade creation and consumption effects) but at the expense of domestic producer loss and so loss in government tax revenue. As under full liberation, the net welfare loss in 2020 is equivalent to 0.09 % of the country GDP. And the revenue loss effects will be higher for foodstuffs, machinery and electrical, textiles, transportation and vegetable products. Allowing for sensitive products, the effects decline significantly for foodstuff and textiles sectors as these are the two sectors with higher number of sensitive products. While the effects are largely moderate, to counter revenue loss during this short run period of signing the deal Tanzania could: one, integrate the loss into the EPA negotiations; two, partial liberalization to allow for dynamic adjustment to the revenue loss and three, expand the tax base to shield the revenue loss.

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1. Introduction

Tanzania is in a crossroad, either to sign or not to sign the European Union (EU) – East African Community (EAC) economic partnership agreement deal. The signing of the long-awaited economic partnership agreement between EU and EAC regional bloc has been off the agenda for a long time now. Of the six Partner States of EAC, Tanzania has long been perceived as the stumbling block for signing, ratifying and implementing regional and continental trade and investment agreements. Thus, fear of potential losses and uncertain benefits continue to delay the signing, ratification and implementation of trade and investments agreements in many countries, including Tanzania, hampering meaningful regional and global integration.

A study by Leyaro *et al.* (2021) for instance, shows that while Tanzania has been quicker in signing and ratifying the protocols as provided in the EAC and SADC treaties, it has been slower in implementing most of the signed and ratified protocols.¹ Tanzania has signed but has not ratified the Tripartite for Free Trade (that brings EAC, SADC, and COMESA) and has in 2022, after a long debate, ratified the AfCFTA that it signed in 2018. All these are out of concerns regarding potential losses from opening the country to regional trade and investment agreements. Partly attributed to the slow ratification of the agreements, Tanzania's rating of 0.312 in 2019 on the Africa Regional Integration Index (ARII) was lower than Africa's average of 0.327 (0 is the lowest and 1 is the highest). Furthermore, the country's ARII score of 0.51 in the EAC in 2019 was lower than the EAC regional average of 0.54, while in the SADC block, it scored 0.29 compared to a regional

¹Of the two regional blocks Tanzania is a member of, it has only implemented most of the EAC protocols about 67% of the protocols. Though Tanzania has ratified nearly 54% of all the protocols as provided in the SADC Treaty, it has only implemented about 4% of all the protocols. This poses a serious concern on the country's commitment to the implementation of the protocols as provided in EU-EAC EPA, AfCFTA, WTO, to mention a couple (Leyaro *et al.*, 2021).

average of 0.34. Implementation of signed and ratified protocols is slower in Tanzania than in its regional peers (ARII Report, 2019).

Fear of the unknown also faces Tanzania in the EU – ECA economic partnership agreement negotiations. The Economic Partnership Agreements (EPAs) came about as the result of World Trade Organization (WTO) call for the end to the breach of non-discriminatory (most favoured nation) principle, where under the 1975 Lome Convention EU has been granting the 79 African, Caribbean and Pacific (ACP) countries trade preferential treatment, irrespective of their income levels. However, under the new Cotonou Partnership Agreement that replaced Lome Convention, which was signed in 2000, the EPAs call for commitment to liberalize trade reciprocally to make trade relations between EU and ACP countries WTO compliant, where EU could negotiate different EPAs with ACP sub-groups. EPAs therefore aimed at liberalizing most of the trade in goods and services, with the exception of sensitive sectors and products, in conformity with WTO rules (Stender, F., *et al*, 2020).

EPAs negotiations between the EU and regional blocks of ACP countries that started in 2002 were expected to last for five years, until 2007. However, to date seven EPAs are under provisional application between the EU and 32 ACP member countries. According to the text of the agreement, the objective of EPAs is to promote trade while also fostering sustainable development, regional integration, and Aid for Trade (Aft) (the trade and development agenda).² As the result, there are those who perceived EPAs and associated Aft programmes as important opportunity to promote trade integration and economic development. EPA is therefore seen as important agreement that is expected to enhance trade and investment opportunities and help boost sustainable economic growth and job creation. Furthermore, EPAs are expected to complement the binding commitments on environmental protection, climate change and labor rights. Even though, not all countries

²The rationale behind the EPAs is that reciprocal trade liberalization is expected to encourage economic development.

in the ACP agree with the EU's demands to open their markets to exports from European companies in the reciprocation for free access to the EU's markets (Hurt, 2016; Berthelot, 2017).

These countries are in fear of opening their borders to relatively high quality and cheaper imports from EU markets to compete with domestic industries. Other complications in the EPAs negotiations arise from a fragmented trade policy framework considering multiple, partially overlapping regional economic communities (RECs) in Africa.³ Furthermore, under the Cotonou Agreement only the Least Developed Countries (LDCs) are granted duty and quota-free access to the EU markets under the Everything but Arms (EBA) preference scheme. Middle-income countries must trade under the less generous GSP or GSP+ scheme. As a result of this fragmented trade policy framework, LDCs and middle-income countries have different incentives to conclude EPAs negotiations with the EU that offer permanent free access to the European markets but also demand market access commitments from the ACP countries. In addition, the recent UK exiting EU, hence Brexit, bring with it more complications in the EPAs negotiations.

East Africa, as a region, has been negotiating the EPAs with EU under EAC since 2002, which were concluded in 2014. Despite two decades of tortuous negotiations, the results for EU–EAC EPA negotiations have been derailed and not impressive. Like some ACP states, EAC Partner States have concerns that, amongst other things, import growth associated with EPAs will cause serious injury to their underdeveloped import competing production and deny them opportunities to grow and develop stronger import competing and exporting capacities to supply domestic, regional and global markets. Hence the Partner States are at various stages of EPA negotiations with the EU. Kenya and Rwanda signed interim EPAs in 2016; while Burundi, Uganda and Tanzania are still

³Among ACP countries, only South Africa had an FTA in place with the EU: the Trade, Development and Cooperation Agreement (TDCA), which was signed in 1999 and entered into force in 2004.

grappling with decision whether to sign EPA with the EU citing concerns with perceived EPA costs vis-à-vis benefits.

In line with some countries in the ACP and Africa such as Nigeria, Tanzania has been delaying the ratification of their respective regional EPAs with the EU arguing that the EPAs undermine its industrialization strategies (Rowden, 2016; Ogunmade and Ajimotokan, 2018). Although EPAs contain provisions that can be used (temporarily) to protect fledgling industries, countries like Tanzania and Nigeria perceive these as insufficient to meet their industrialization ambitions. This happens at time that the EPAs cannot be entered into force until all Partner States in EAC have signed and ratified them, which is unlikely to happen soon. The stance of Tanzania in the EPAs negotiations has therefore raised substantial tension with other Partners States in EAC, especially with Rwanda and Kenya that have signed the deal in 2016. While most Partner States are all classified as LDCs, hence can export duty-free access to everything but arms (EBAs) to the EU markets; Kenya, which is a developing country, is worried will lose its duty-free access to EU markets if the EPAs are not implemented soon (as the result will have to resort to a much less favorable GSP). Furthermore, more complications have arisen now that Tanzania has been declared a lower middle-income country as from 2020; and so no longer qualify into LDCs status. In addition, the decision of the UK to exit the EU, hence Brexit, further complicates EU-EAC trade relations, as this has the potential to render EPAs with the EU less attractive).

Thus, trying to understand the merits of extremely complex agreements like EPA for a lower-middle-income country like Tanzania is hard. Applying a suitably calibrated and empirically tested partial equilibrium framework, we examine the trade, revenue, and welfare effects of Tanzania signing, ratifying, and implementing the EU-EAC EPA deal. Unlike previous studies that have looked on the same issue for the case of Tanzania (see

for example Milner *et al.* 2005; Karingi, 2005; Mkenda and Hangi, 2009; Zgovu and Kweka, 2019), we add to this empirical work on the effects of EPA in several fronts.

First, most studies that estimate the effects of EPA assumes perfect source substitutability. However, in real world this is unlikely given different level of development and technology across regions and countries. For that case we estimate the effects of EPA allowing for imperfect source substitutability. Second, while most studies assume full liberalization of market (i.e. zero rated tariff from EU after ratification), in our case we estimate the effects under two different scenarios: full liberalization and partial liberalization. With full liberalization, we assume that all products imported from EU market will be tariff-free while under partial liberalization we assume that certain products termed as 'sensitive products' continues enjoying charging tariff for imports from EU. This is in line with the argument that most developing countries would like to protect some of its key sectors that are likely to be vulnerable to cheap imports from less cost countries such as those of the EU. In addition, in that partial liberalization, we also include estimate that assumes all products with current tariff rate of thirty percent and above as sensitive products. The findings of this study are therefore expected to provide prima facie evidence to help inform Tanzanian's policy makers in the EU-EAC EPAs negotiation interests.

The result show that the revenue loss as a percentage of the total import duty revenue under full liberation (allowing for current imports, consumption, trade creation and diversion effects) is expected to be 23 % in 2020; which is equivalent to 2% of the total revenue, to 1% of total government budget and to 0.1 % as proportion to GDP. Though small in magnitude, in short run it is suggested that Tanzania will face welfare losses as consumers tend to gain from cheap imports (as a results of trade creation and consumption effects) but at the expense of domestic producer loss and so loss in government tax revenue. As under full liberation, the net welfare loss in 2020 is equivalent

to 0.09 % of the country GDP. And the revenue loss effects will be higher for foodstuffs, machinery and electrical, textiles, transportation and vegetable products. Allowing sensitive products, the effects decline significantly for foodstuff and textiles sectors as these are the two sectors with higher number of sensitive products.

Besides the introduction in this section, the rest of the paper is organized as follows. Section 2 provided the review of empirical literature while section 3 provides the summary of regional and international trade agreements for Tanzania. Section four presents the empirical modelling framework and data. Section 4 presents Tanzania trade performance in the regional blocks it has signed, ratified, and implemented (EAC) as well as with European Union (EU) and rest of the world (ROW). Discussion of the results are presented in section 5 while section 6 summarizes and gives the implications of the findings.

2. EPA: A Review of Empirical Literature

Following the need to make ACP-EU trade relations compatible with the World Trade Organization's (WTO) rules and regulations; the Lomé Conventions trade relations between EU and ACP countries on non-reciprocal terms that ACP countries have since 1975 was replaced by the Cotonou Agreement, which was concluded between the parties in 2000. Now preferences granted to specific developing countries can only be maintained, in a GATT-consistent manner, based on reciprocity. The Cotonou agreement defined a new development partnership between the EU and the ACP countries, including a comprehensive overhaul of the trade arrangement, which has been characterized by unilateral trade preferences extended to the ACP countries by the EU. In the Cotonou Agreement, the EU proposed negotiating a series of EPAs. The EU and regional groupings of ACP countries offer reciprocal trade preferences.

To continue to gain preferential access to the EU markets, each ACP regional trading group would have to give the EU preferential access to its regional markets. The questions facing ACP countries are whether the benefits of an EPA outweigh the costs of granting preferential access to the EU and how any adjustment costs should be addressed in negotiations. Hence, EPA between ACP countries and EU has been a subject of contention, primarily because of disputable benefits and implementation modalities that appear to have dramatically delayed conclusion of their negotiations. These challenges have motivated many studies with the aim of informing ongoing and future analyses.

Based on the recent review of empirical literature by Zgovu, E., and Kweka, J., (2019), Table 2 lists a sample of studies highlighting significant findings for different countries or regional groupings. In general, the studies indicate that EPA is a controversial trade policy issue and argue many beneficiary countries to be cautious since the net gain to them are very limited (if not negative). Even more challenging is the fact that empirical evidence for or against the EPA has been largely inconclusive as findings differ across countries. Variations of findings in EPA studies may be explained by the fact that, impacts of EPAs

are highly influenced by the prevailing economic structures and the relationship between the respective country and the EU.

Furthermore, existing studies use different approaches and methodologies (mainly due to data availability). The methods range from partial analysis (Brenton *et al.*, 2007; Bond, 2002; Zgovu and Kweka 2008; Lwanda, 2011), to general equilibrium and related trade simulation frameworks (Kone, 2008; Hammouda *et al.*, 2007; Adriamananjara *et al.*, 2009), which can be termed as ex-ante methods that simulate the potential welfare, trade and revenue effects of agreements. More recently, attempts have been done to use post-ante method to assess the trade effects of all provisionally applied EPAs to date (Stender, F., 2020).

Despite the use of different approaches, some findings appear to stand out consistently as emerging conclusions regarding the impact of EPA on the ACP countries. These findings are summarized in Table 2. The main highlights are that; (1) the difficulties of agreeing regional groupings are a reason why EPA negotiations have been so protracted (Bond, 2008), (2) EPA reduces tariff revenues of countries, (3) EPA lowers domestic industrial competitiveness and industrialization (Bond, 2008), (4) EPA has other multiple impacts to different sectors (some positive, others negative); and (5) small net welfare effects either positive or negative depending on assumptions regarding domestic competition with EU imports and treatment of sensitive products, among other things. Following these differences in gains and losses, negotiations on the EPA have been stalling in some countries – particularly Tanzania, while advancing in others.

Table 2. Summary of existing studies on the impact of EPA by Geographical configuration

(a) Regional Economic Communities (RECs)			
	Study	REC	Findings/Arguments
1	Stender et al (2020)	APC	Did not reveal a general EPA effect on total exports from ACP countries to the EU nor on total exports from the EU to ACP countries. Some early

			effects, however, can be observed when looking on specific agreements and economic sectors.
2	Zgovu and Kweka (2019)	EAC	Whether with or without Brexit, EPA will likely result in imports increases which will 'injure' certain import-competing products, weakened intra-EAC trade integration, tariff revenue loses, and welfare loses in the short run.
3	Gustafson <i>et al.</i> , (2017)	EAC	Export market will shrink following Brexit, reducing the expected EPA benefits
4	Bouet <i>et al.</i> , (2016)	West Africa	Decrease in tax revenue from -7.5 percent in Benin to -25.8 percent in Burkina Faso); and overall decline in welfare in West African countries except Burkina Faso and Ivory Coast
5	De Melo and Regolo (2014)	EAC	Revenue losses, welfare gains as well as producer and consumer gains are limited. EPA leads to significant increase in importation of intermediate and semi-processed goods
6	ITAQA (2012)	West Africa	Import duty revenues will decline by 8 percent due to EPA as trade deteriorates. Trade liberalization will not lead to increase in exports by West African countries
7	Lwanda (2011)	South Africa	EPA may hinder regional integration due to its failure to meet certain provisions in the WTO provisions
8	Fontagne <i>et al.</i> , (2008)	ACP	EPA will lead to decrease in tariff revenue of between 70 to 80 percent in all six regions of the ACP (except for the Pacific region). However, there is increase in export of livestock, agro food and textiles to the EU as well as increase in import from EU between 20 and 40 percent (mostly in textiles, primary products, etc.)
9	Persson (2008)	ACP	EPA leads to trade facilitation, by reducing border crossing times, and in turn increasing trade performance. The study estimates that, a one-day delay reduction in border crossing time by the exporting country leads to a 1 percent increase in export, while a day reduction in border crossing by importing country would increase imports by 0.5 percent
10	Brenton <i>et al.</i> , (2007)	SADC	Impacts depend on country policies and economic structures
11	Morrissey and Zgovu (2007)	ACP	The study finds significant welfare gains in more than half of the ACP countries following immediate "complete" elimination of tariffs on agricultural imports from EU but potential revenue losses are non-negligible
12	Karingi <i>et al.</i> , (2005)	SSA	Decrease in production of natural resources, energy, and cotton for Sub Saharan Africa following the signing of EPA agreement. Decline in manufacturing activities (for heavy, medium, and low-tech industries), clothing, and textile under full reciprocity. Revenue losses of up to 32.5 million USD due to tariff removal for Tanzania. However, they found increase in clothing, textile and agriculture production under FTA

13	Busses and Grobmann (2004)	West Africa	Static import effects of EPA for some ECOWAS countries are relatively high, including increases in preferred imports from EU by 21 percent, and decline in government revenue by 4 to 9 percent in most of the West African countries. However, trade creation is larger than trade diversion in all the West African countries
14	McKay <i>et al.</i> , (2000)	EAC	Tanzania and Uganda face declines in welfare following EPA but experience lower import prices amidst increased competition that leads to falling consumer prices

(b) Specific Country Studies			
	Study	Country	Findings/Arguments
15	Adenikinju and Bankole (2014)	Nigeria	Tax revenues decrease by 0.5% at the start and 5 percent at the end of liberalization, while GDP fall by 2%. Unemployment rise by 15%, while wages and consumption decrease. EPA will lead to trade diversion, hence lower regional integration
16	Mkenda and Hangi (2009)	Tanzania	Significant revenue losses of up to 14.6 Billion TShs from products attracting 10 percent duty (by 2023), and 6.3 Billion TShs for products attracting 25 percent duty (by 2023). Total Loss from trade diversion amounts to 26.7 Billion TSH.
17	Andriamananjara <i>et al.</i> , (2009)	Nigeria	Overall, EPA leads to negative welfare effects
18	Kone (2008)	Ivory Coast	There will be net losses in revenue and de-industrialization due to EPA
19	ITAQA (2008)	Nigeria	EPA will lower trade integration due to trade diversion. Nigeria imports will reduce by 8.7 percent from Mali, by 5.7 percent from Niger, by 5 percent from Ghana, and by 4 percent from Ivory Coast. Revenue losses from customs duty would be about 3.2 Billion Euro in the last year of the liberalization while Nigeria's investment decrease by 12 percent. Furthermore, GDP decrease by 1.8 percent at the end of liberalization period
20	Zgovu and Kweka (2008)	Tanzania and Malawi	Tanzania and Malawi record relatively small increases in total imports, although trade creation and trade diversion will occur. EPA will lead to a rise in Malawi's (Tanzania's) imports from the EU representing 3.4% (2.2%) of GDP; fall in tariff revenue by 26% (52%), and net welfare loss equivalent of 0.4% (0.2%) of GDP.
21	Hammouda <i>et al.</i> , (2007)	Sudan	Domestic producers become less competitive as EPA favors foreign producers
22	Patel (2007)	Ghana	EPA would not lead to meaningful improvement in access to EU market for Ghana exporters. Instead, EPA will lead to Loss in production, as tariff elimination entails exposing domestic producers to direct competition with EU firms. Liberalization lowers Ghana's government revenues

23	Milner <i>et al.</i> , (2005)	Tanzania and Kenya	Revenue losses of up to TSH 36.9 Billion for sectors with consumption effect, and up to 28.9 Billion for sectors with trade diversion and consumption effects, coupled with decline in production. Kenya is the biggest loser (its manufacturing sector will be harmed more). However, there are consumer gains in both countries
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Source: Authors' compilation based on Zgovu, E., and Kweka, J., (2019)

3. Tanzania Regional and International Agreements

Tanzania is a member of two regional economic integration blocs, namely the EAC and the SADC. The country withdrew from the Common Market for Eastern and Southern Africa (COMESA) in 2000, which it joined in 1994. Tanzania has also joined in 2015, and is negotiating, a Tripartite Free Trade Area that brings together the EAC, SADC and COMESA (TFTA) and has recently ratified Africa Continental Free Trade Area (AfCFTA) in 2021, which it signed in 2018. Tanzania is also negotiating the World Trade Organization (WTO)'s Trade Facilitation Agreement (WTFa) that entered into force in 2017, following ratification by two-thirds of the WTO membership.

The Treaty establishing the EAC came into force in 2000 and with it came the protocols for the establishment of the EAC Customs Union in 2005, EAC Common Market in 2010 and a single custom territory in 2014. In 2013 the bloc signed the protocol for the establishment of EAC Monetary Union and the Partners States are aspiring to form a Political Federation in the future. A recent study by Leyaro *et al.* (2021) looked at what protocols Tanzania has implemented for those which it has signed and ratified in the regional blocks. Out of the total 48 EAC protocols, Tanzania has signed 43 of them, equivalent to 89.6%. Of all the protocols, the country has ratified and implemented 36 (70.8%). Relative to other regional blocs which it is a member of, Tanzania has to a larger extent signed, ratified, and implemented most of protocols as provided by the Treaty that established the EAC.

Tanzania is also an active member in SADC, which in 1992 grew out of the Southern African Development Co-ordination Conference. SADC's trade protocol was signed in 1996 and came into effect in 2000. As shown by Leyaro *et al.* (2021), although Tanzania has signed most of protocols within the SADC, 24 out of 26 which is equivalent to 92% of the protocols, it has been very slow in ratifying and implementing most of the signed protocols. Of the signed protocols, Tanzania has only ratified 14 of them, which is

equivalent 54% and only one has been implemented among the ratified protocols, that is the protocol on trade in goods, which is equivalent to only 4%.

Tanzania was a member of COMESA that it joined in 1994 but withdrew membership in 2000, based on an assessment that membership in multiple regional integration was too resource-consuming and that Tanzania's regional integration interests were better served by its membership in both EAC and SADC. Tanzania has signed but not yet ratified the Tripartite Free Trade Area (TFTA) that's brings together the EAC, SADC and COMESA. The process of negotiating TFTA have come a long way that began with the Kampala Communique of the Tripartite Summit in 2008 that agreed to establish a single Customs Union, beginning with a TFTA. The negotiations for the establishment of the TFTA was launched and signed in 2011.⁴

Tanzania has signed the African Continental Free Trade Area (AfCFTA) in 2018 and ratified it in 2021 after a long discussion, which called for elimination of tariff and non-tariff barriers and harmonization of standards. AfCFTA represent a unique opportunity to boost intra-regional trade and investment, allowing companies and farmers to tap into rapidly growing markets that that connects almost 1.3 billion people across 54 African countries, both within the region and in other parts of Africa. The agreement thus aims to create a single market for goods and services to deepen the economic integration of Africa. The agreement was brokered by the AU and was signed by 44 of its 55 member states in Kigali, Rwanda on March 21, 2018. As of February 2022, 41 of the 54 signatories had deposited their instruments of ratification with the chair of the AU Commission, making them state parties to the agreement.

⁴The Tripartite Member/Partner States undertake to conclude negotiations on outstanding issues under Phase I as set out in Annex I on elimination of Customs Duties, Annex II on Trade Remedies and Annex IV on Rules of Origin after the launch of the Tripartite Free Trade Area. Phase II negotiations recognized the need to conclude Phase I negotiations. The Tripartite Member/Partner States agree to negotiate and endeavor to conclude protocols on a) a protocol on trade in services; and b) a protocol on trade-related matters.

Furthermore, while the arrangements under the Lomé Convention have been giving Tanzania and other ACP countries preferential access to EU markets since 1975, that nonreciprocal arrangement has been challenged by the WTO. It has been replaced with a series of regional economic partnership agreements (REPAs) between EU and blocks of ACP countries that are members of regional trading arrangements. Tanzania therefore has been negotiating REPAs under EU –EAC regional groupings since 2000. In addition, Tanzania, as most other EAC Partner States that are considered as LDCs (Burundi, Rwanda, Tanzania, and Uganda), since 2001 has been receiving full duty-free and quota-free access to the EU markets for all their exports except arms and armaments (EBA). There are currently 49 beneficiaries under this arrangement. Entry into the EBA is automatic and, unlike other Generalized Scheme of Preferences (GSP) arrangements, the EBA has no time limit. However, in 2020 Tanzania attained a lower middle-income status whereas a middle-income country, it must trade under the less generous GSP or GSP+ scheme.

Thus, Tanzania trade policy is guided by adherence to the World Trade Organization (WTO) rights and obligations. Tanzania grants at least most-favored-nation (MFN) treatment to its trading partners. All tariffs are ad valorem, and there are no seasonal duties, tariff quotas, or variable levies. Tanzania charged import duties within the WTO bound limits. Bound tariffs represent the maximum allowable tariffs that WTO members have scheduled as part of their commitments in the Uruguay Round of multilateral trade negotiations. However, countries are free to apply import duties that are either lower or higher than their bindings, which is the case in Tanzania. Tanzania for instances charges higher tariff rates for the list of her sensitive products for several reasons (food security, poverty reduction and the protection of vulnerable domestic producers); hence most of these products have higher rates than the 25 percent import duty. Thus, in addition to the MFN-tariffs, Tanzania applies suspended duties to imports of goods. Most of these surcharges are ad valorem levies, while a few tariff lines are subject to specific duties. The additional import taxes are supposed to protect domestic industry from unfair

competition in addition to the legislation on anti- dumping and countervailing duties, which was enacted in 2004.

Despite substantial trade liberalization and tariff reduction, high prevalence of non-tariff barriers (NTBs) has significantly increased trade costs that have hindered effective implementation of regional integration in Tanzania and most other countries in Africa. Prevalent NTBs are largely the manifest, either intentionally or not, of the failure to sign and ratify, and/or implement most of protocols as provided in those treaties and agreements (Oiro, et al., 2017; Etyang, D., 2019). Attempts by regional countries to deal with NTBs through various initiatives like the EAC Time-Bound Program for elimination of identified NTBs (EACS, 2009), seem to have achieved little.

4. Empirical Modelling Framework and Data

4.1. Modelling Framework

This study uses partial equilibrium model to examine the effects of EPA for the case of a Tanzania in the EU-EAC EPA, where Tanzania is referred as small home country j that is a member of regional blocks (i.e. EAC/PTA). Markets are assumed to be perfectly competitive, and country j 's domestically produced import substitutes are treated as perfect alternatives to imports. There is also perfect substitutability between imports from alternative outside sources (in this case the Rest of the World (RoW)). In this PTA, the partner country supplies j at increasing cost conditions, while the outside countries (EU and RoW) supply using different constant cost technologies, with the RoW being the least-cost producer. Figure 1 illustrates the impact of reciprocity.

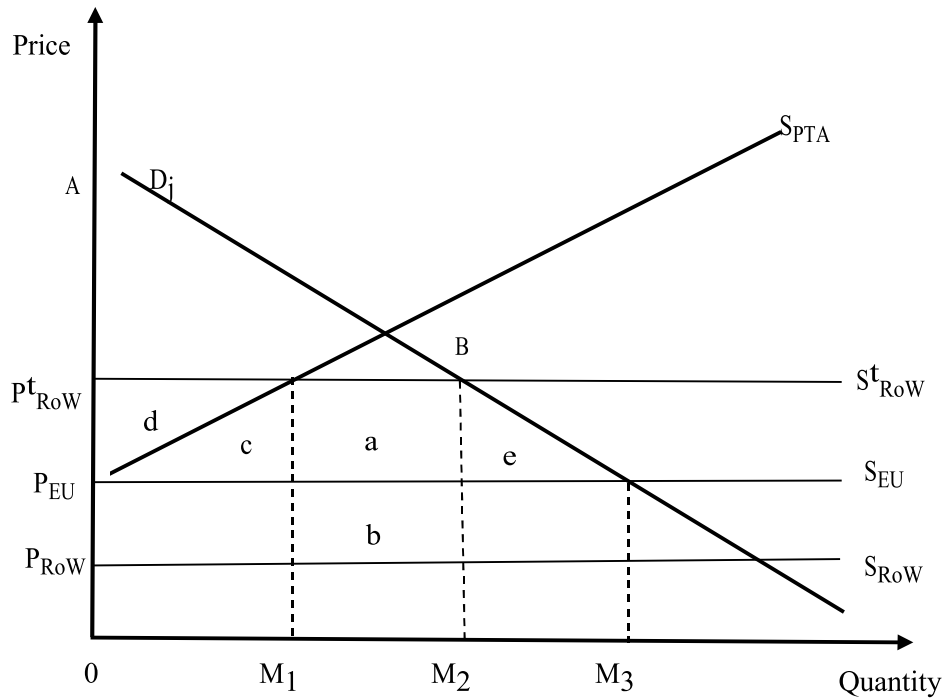
Line D_j represents country j 's demand for imports whereas line S_{PTA} represents EU supplies (export) to country j . Free trade supply conditions for the RoW are represented by S_{RoW} , while a free trade supply schedule for the EU lies anywhere above S_{RoW} . Prior to EU-EAC EPA country j imposes MFN tariff rates on imports from the EU and RoW. Thus, $P_{EU}^t = P_{EU}(1 + t_{MFN})$ and $P_{RoW}^t = P_{RoW}(1 + t_{MFN})$.

Initial cost conditions ensure that $P_{RoW}^t < P_{EU}^t$ (for expositional simplicity, we do not show P_{EU}^t in the graph). This price differential will bear both *trade creating* and *trade diverting* effects if country j adopted discriminatory 'preferential' trade policies towards EU. The relevant tariff-inclusive supply line is S_{RoW}^t , and the resulting total imports for country j is OM_2 , being the sum of imports OM_1 from the partner country and M_1M_2 from the RoW. Country j 's supply capability is ruled for simplicity. We can therefore study welfare effects in country j using consumers' surplus with respect to the import demand schedule D_j given as area of the triangle ABP_{RoW}^t plus the tariff revenue on extra-regional imports, thus $(a + b)$.

Assume country j and its regional blocks member countries (i.e., PTA/EAC) enter an EPA with EU, in which imports from the EU enter the regional blocks and Tanzania duty-free. Imports from RoW continue to be subjected to import tariffs. Suppose the EU-EAC EPA reduces the price of imports from the EU countries to a level such as P_{EU} lying anywhere below P_{RoW}^t (but above free trade P_{RoW}). Post EU-EAC EPA, P_{EU} becomes the relevant (perfect elastic) supply line that allows total imports to expand from OM_2 to OM_3 , and that comes from the EU only (which assumes perfect substitution between EU and RoW imports). In practice not, all supply may come from the EU only due to imperfect substitution.

Total import volume can be broken into three distinct components: the increase in import volume M_2M_3 , which is a pure consumption expansion effect; M_1M_2 diverted from RoW; and OM_1 displaced from the PTA/EAC. In technical terms, OM_1 represents 'trade creation' arising from the displacement of relatively inefficiently produced in regional blocks and Tanzania goods by the relatively efficiently produced EU goods (although the EU is not the most efficient globally). M_1M_2 is 'trade diversion' as it represents the volume of imports from the relatively inefficient EU producers displacing imports from the relatively efficient (least constant cost) RoW producers. This is diversion between extra regional suppliers.

Figure 1: Trade, Revenue and Welfare Effects of Tanzania Signing EU-EAC EPA



Source: Author's own compilation

At the price level P_{EU} , there is a resource loss equal to the potential maximum tariff revenue ($a + b$) as imports from the EU enter duty-free in PTA/EAC and Tanzania. Trade creation brings about a global resource saving effect given by area c , and relocation of producers' surplus (*area d*) in the PTA/EAC to consumers, both of which increase consumers' surplus by area($c + d$). Adding together the welfare-increasing expansion in consumers' surplus, pure consumption effect (area e) and trade creation, on the one hand, and welfare-decreasing trade diversion effects, that is, ($c + d + e - b$), on the other hand, means that the net welfare effect is ambiguous, depending on the relative strengths of either force. The more efficient the EU, the smaller the trade diversion and hence the greater the probability of a welfare-improving EPA.

The import, tariff revenue, and welfare effects outlined above can be estimated as set out below. The consumption effect component of import effects can be measured using the elasticity of import demand function. In this case, the changes in the import prices are assumed to be caused by changes in ad valorem import tariffs:

$$\Delta M_{EU}^C = \left(\frac{-t_{MFN}}{1 + t_{MFN}} \right) \cdot e_M^D \cdot M_n^{EU} \quad (1)$$

Where t_{MFN} is the MFN tariff rate imposed on imports from the EU in the present period $n(2020)$, e_M^D is elasticity of demand for imports, and M_n^{EU} is imports from the EU.

Import source substitution effects in an imperfect substitution framework can be measured as:

$$\Delta M^k = \omega \left(\frac{t_{MFN}}{1 + t_{MFN}} \right) \cdot \sigma_k^{EU} \cdot M_n^k \quad (2)$$

Where $0 \leq \sigma_k^{EU} \leq 1$ is the elasticity of substitution between imports from the EU and those from the PTA/EAC and the RoW. ω is the indicator for welfare-increasing or welfare-lowering switch in imports between EU and k. When $k = \text{PTA}$ (in this case EAC equation 2 measures welfare-raising switching of imports from relatively less efficient suppliers from the PTA (EAC in the case) to more efficient suppliers from the EU ($\omega=1$) and with $k = \text{RoW}$ equation 2 captures a welfare-lowering switch of source between relatively less efficient EU and the relatively more efficient RoW ($\omega = -1$). M^k is the quantity of current imports from region k (PTA or RoW). Source substitution from the PTA (in this case EAC) implied $\Delta M^k \geq 0$ (trade creation) and that of RoW implies that $\Delta M^k \leq 0$ (trade diversion).

Applying equation 2 requires key information such as the source substitution elasticities, which is not readily available for some countries, and therefore would have to be 'guesstimated' or borrowed from elsewhere (Milner *et al.*, 2005). For this or other reason, the SMART model used by WITS applies a fixed and high source substitution elasticity of 1.5 for all products irrespective of import source. High substitutability between the EU and the RoW is quite reasonable at high levels of aggregation of extra-EAC sources.

Milner *et al.*, (2005) take a moderate level of source substitution by adopting a perfect substitution framework, which also partly avoids the problem of dealing with guess estimates of source substitution elasticities. Where the world price level represents the

lowest production cost technology the price of imports from the EU will lie above the world price level. Furthermore, starting from the initial state before the EPA where the tariff-inclusive prices of imports from the EU and the RoW are the products of a constant cost technology over the relevant range, then it is plausible that the EPA will reduce the price of EU imports over the price of RoW imports. The relative price fall will cause diversion of imports from RoW to EU sources; trade diversion is particularly critical where the RoW as the most efficient producers supplies the majority of a given product. That is, consumption of EU imports in EAC Partner States will increase at the expense of most efficiently produced RoW imports. Milner *et al.*, (2005) capture the apparent trade diversion with consumption effects in the perfect substitution framework in equation 3:

$$\Delta M_{TD}^C = 0.5 \left(\frac{t_{MFN}}{1 + t_{MFN}} \right) \cdot e_M^D \cdot M_0^{RoW} \quad (3)$$

where for lack of information about where the price of EU imports may lie between world price level and tariff-inclusive price of imports from the RoW a halfway point (0.5) is assumed.

Pre-EPA there are sectors and products where intra-EAC trade dominates and/or compete with tariffed EU and RoW imports despite the EU and RoW having superior production technologies hence lower cost producers. The EPA exposes EAC (i.e. Tanzania (TZA)) producers to direct competition with lower cost producers of EU imports, resulting in creation of more trade and consumption of more efficiently produced EU imports that displaces less efficient EAC (Tanzania) producers. In these instances, the consumption effects can be estimated using equation 4:

$$\Delta M_{TC}^C = -0.5 \left(\frac{t_{MFN}}{1 + t_{MFN}} \right) \cdot e_M^D \cdot M_0^{TZA} \quad (4)$$

The negatively (positively) signed outcome in equation 3 (4) implies welfare loss (gain) because of the EPA changing from the initial positions in the concerned sectors where the RoW (Africa) is the more efficient producer than the AEU (EAC).

The total tariff revenue effect can be estimated as the summation of tariff revenue losses due to removal of tariffs on existing imports from the EU (M_0^{EU}), and tariff revenue lost on imports shifted from the tariff-paying RECs (ΔM_{TC}^C) and RoW (ΔM_{TD}^C) sources to duty free EU sources. This can be represented as:

$$\Delta R = t_{MFN} \cdot (M_0^{EU} + \Delta M_{EU}^C - \Delta M_{TD}^C + \Delta M_{TC}^C) \quad (5)$$

Welfare effects (ΔW) associated with the import and revenue effects are estimated using the expression:

$$\Delta W = t_{EU}^{MFN} \left(\frac{1}{2} \cdot \Delta M_{EU}^C + \Delta M_{EAC} + \Delta M_{RoW} \right) \quad (6)$$

Where the first term captures the welfare-raising effects of consumption effects stemming from cheaper duty-free prices. The second term measures the welfare-improving effects of import source substitution of the relatively inefficient preference-receiving regional partners with the relatively efficient EU producers. The last term captures the welfare-reducing effect of import source substitution of the least-cost producers from the rest of the world with preference receiving EU producers.

4.2. Data Sources and Descriptive Statistics

The data for this study come from different sources. First, we use trade data (on exports and imports) from trade map (www.trademap.org), which has bilateral trade statistics up to 6-digits level Harmonized System (HS). We extract the data on Tanzania exports and imports for all countries and organized as follows: PTA (Kenya, Uganda, Rwanda, and Burundi), European Union countries (EU) as well as the Rest of World (RoW), from 2001 to 2020. Trade Map covers 220 countries and territories with over 5,300 products at 6 digits HS code. The monthly, quarterly, and yearly trade flows are available from the most disaggregated level. However, in our present analysis the focus is only on yearly trade flow data, where all trade data are in millions of USD, unless reported otherwise.

Second, we use tariff data (MFN applied tariff rate) from the World Integrated Trade Solution (WITS). The WITS is a trade software tool giving access to bilateral trade between countries based on various product classifications, product details, years, and trade flows. It also contains tariff and non-tariff measures as well as analysis tool to calculate effects of tariff reductions. In WITS software, two main tariff line data are reported based on the sources: from TRANS and WTO-IDB. All tariff data are for the year 2020. For comparison, and sensitivity analysis, we also use MFN duty data from Milner *et al.*, (2005). What we noticed is that there is only minor difference between these two sets of data. Hence in this study and in all our analysis we use tariff data from WTO-IDB unless reported otherwise.

Third, we use the import elasticity data and elasticity of import substitution between different market sources, PTA, EU, and RoW. We borrow this data from the study by Milner *et al.*, (2005). Table A2 (in the Appendix) report the average tariff data (at 2 digit of HS code) and the elasticity data as reported by Milner *et al.*, (2005). Finally, we use data on revenue from Tanzania Revenue Authority (TRA) and total budget (actual) and Gross Domestic Product (GDP at current prices) from Tanzania Economic Survey of 2020.

Table 1: Summary Statistics

	Observation	Mean	SD	Min	Max
<i>Panel A: Trade with EAC</i>					
Export to EAC	23008	335.27	3527.99	0	351292
Imports from EAC	23008	261.39	2126.19	0	113879
Total Trade with EAC	23008	596.67	4241.53	0	351448
<i>Panel B: Trade with EU</i>					
Export to EU	23008	467.30	7153.97	0	416615
Import from EU	23008	855.10	4371.89	0	159591
Total Trade with EU	23008	1322.40	8395.29	0	416615
<i>Panel C: Trade with RoW</i>					
Exports to RoW	23008	2210.66	41080.75	0	2868195
Imports from RoW	23008	5334.56	78680.01	0	7309721
Total Trade with the RoW	23008	7545.22	89314.48	0	7399448
<i>Panel D: Tariff and Elasticity</i>					

Preferential tariff with South Africa	23008	0.02	0.59	0	20
Preferential tariff with SADC	23008	0.02	0.59	0	20
MFN duty rate from TRANS	23008	13.04	11.90	0	100
WTO-IDB	23008	12.79	11.53	0	60
MFN duty from Milner <i>et al.</i> , (2005)	23008	12.81	11.74	0	54
Elasticity from Milner <i>et al.</i> , (2005)	23008	1.80	0.75	0	3

Notes: The table shows the summary statistics for Tanzania's trade with EAC member states, EU, and the RoW (Panel A-C) and the preferential tariff with South Africa, SADC Countries, and MFN duty rate. The data are at 4 HS Code from 2001 to 2020, and all figures are in thousands of USD, and the tariff rate is in percent.

Data Sources: Trade Map, World Trade Integration Solution (WITS) and Milner *et al.*, (2005).

Furthermore, we ran estimates where we include the entire data set that include sensitive items, and where we split the data into sensitive and non-sensitive items/products. For that case we use EAC Common External Tariffs (EAC-CET) of 2017 to classify items/products (at 6-digitd HS code) as sensitive or non-sensitive. The CET has information on the products declared as sensitive items plus the common tariff charged by EAC member countries (Tanzania inclusive) to other countries not in the EAC. We also treat the declared items as sensitive in our analysis. For more detailed analysis, we also treat all product charged 30 percent duty and above as sensitive items. Table A3 (in Appendix) reports sensitive products (at 4 HS code), the declared common external tariff (as in the EAC-CET) as well as tariff rate as reported on WITS (from TRANS and WTO-IDB). All products marked as CET items are the products declared as sensitive in the EAC-CET. Other products are those with 30 percent and above tariff rate but not sensitive (as per EAC-CET).

Table 1 presents the summary statistics for the key variables (on trade, tariff, and elasticity) in this study that are used in the subsequent analysis. While most of our analysis are performed at 6 digits HS code, the presented trade statistics in Table 1 are averages in yearly basis over the period from 2001 to 2020. Panel A - C summarizes the trade (exports,

imports, and total trade) variables for the EAC, EU and RoW, while Panel D summarizes the tariff and elasticity variables.

As shown, on average, Tanzania exports more to EAC markets than it imports, which stands at a difference of USD 73.6 million, equivalent to about 12.3 percent of total trade with EAC (which is about USD 596.67 million). The case is completely different when looking at trade with either EU or the RoW, as Tanzania significantly exports less than what it imports from these two blocks. Tanzania exports less to EU markets by the tune of USD 387.8 million on average compared to what it imports, which equivalent to 29.3 percent of total trade with EU (which is about USD 1,322.40 million). At the same time, Tanzania exports less to RoW by the tune of USD 3,123.9 million on average compared to what it imports, equivalent to 41.4 percent of total trade with RoW (which is about USD 7,545.22 million). Overall, the total trade of Tanzania with EAC on average accounted about 45 percent of total trade with EU, much less with RoW at about 7.9 percent and further much lower when combining EU and RoW - less than 6.7 percent of total trade (which is about USD 8,867.62 million); suggesting that the bulk of Tanzania trade is still with the EU and RoW rather than EAC.

5. Tanzania Trade Performance with PTA, EU, and the RoW

Before presenting the main findings on the trade, welfare, and revenue implications of signing EPA deal for Tanzania, we first present the preliminary analysis on the trade performance of Tanzania with its trading partners in the PTA (in this case EAC), European Union (EU) and the Rest of the World (RoW). Table 2, present the trade volume (values in million USD) and share of trade (both exports and imports) of Tanzania in EAC, EU and the RoW markets from 2001 to 2020, averaged on interval of five years, while Figure 2 and Appendix Table A1 presents the trend over time. This saves to grasp the overall importance of these markets for Tanzania economy. As shown, while to some extent the exports (both in value and share) to EAC and RoW have been increasing over time, that for EU has been falling during the same period.

Table 2: Tanzania Trade Flow: 2001-2020

	EAC		EU		RoW		TOTAL	
	Value	%	Value	%	Value	%	Value	%
Panel A: Exports								
2001-2005	528.29	8.88	2,667.73	44.86	2,750.51	46	5,947.00	100
2006-2010	1,648.90	11.65	2,355.98	16.64	10,153.15	72.00	14,158.00	100
2011-2015	2,966.85	11.30	3,106.55	11.83	20,180.17	77.00	26,254.00	100
2016-2020	2,604.16	11.22	2,696.61	11.62	17,908.22	77.00	23,209.00	100
Panel B: Imports								
2001-2005	653.50	5.74	2,318.41	20.36	8,415.81	74.00	11,388.00	100
2006-2010	1,393.97	4.21	5,565.80	16.83	26,117.37	79.00	33,077.00	100
2011-2015	2,438.80	3.88	6,584.71	10.48	53,798.77	86.00	62,822.00	100
2016-2020	1,537.37	3.71	5,241.86	12.64	34,688.39	84.00	41,468.00	100
Panel C: Trade								
2001-2005	1,181.79	6.82	4,986.14	28.79	11,153.99	64	17,322	100
2006-2010	3,042.87	6.44	7,921.78	16.78	36,253.69	77	47,218	100

2011- 2015	5,405.65	6.07	9,691.26	10.88	73,960.77	83	89,058	100
2016- 2020	4,141.53	6.4	7,938.48	12.28	52,583.32	81	64,663	100

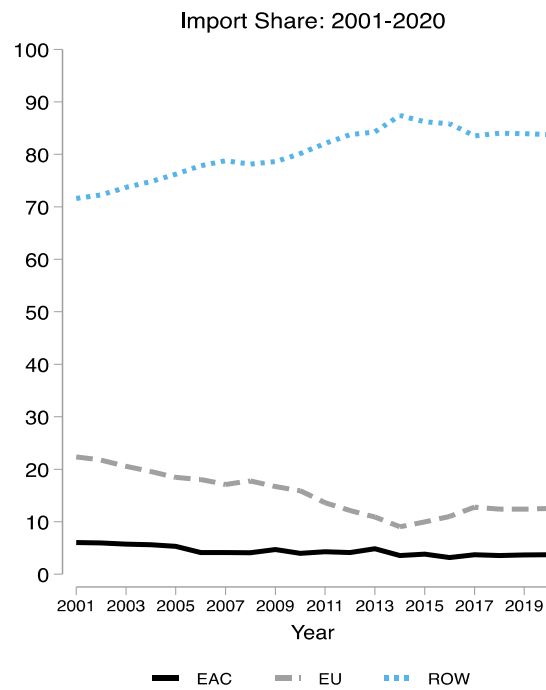
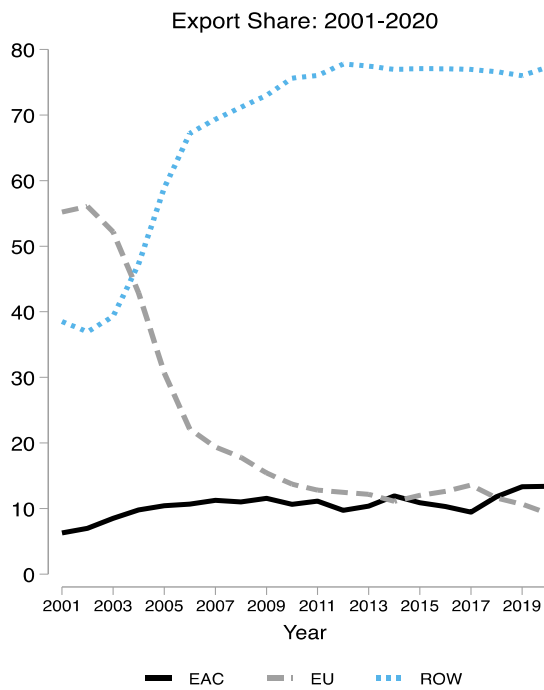
Notes: EAC means East African Community, EU means European Union and RoW means rest of the World (Countries not in EAC and EU). Cells of columns labeled value shows the total trade within the specified period, and all figures are in Mil. USD. The % columns - shows the shares of Tanzania's import, export, and trade over total trade per period. Detailed table is presented in appendix (Table A1).

Source: Authors computation based on Trade Map data.

As shown in Appendix Table A1 and Figure 2, the share of Tanzania exports in EAC markets has more than doubled, as it increased from about 6 percent in 2001 to 13 percent in 2021 and that to RoW from about 36 percent in 2001 to 76 percent in 2021. On contrary, the share of Tanzania exports to EU markets have dropped significantly, from about 57 percent in 2001 to 10 percent in 2021. For the entire period (2001 – 2021) EAC markets accounted about 10 percent of its total exports, EU about 23 percent and RoW about 67 percent.

Coming to imports, the story is opposite both for the case of EAC and EU markets. As shown, the share of imports has dropped more than twice, from 6 percent for EAC and 22 percent for EU in 2001 to 3 percent for EAC and 13 percent for EU in 2021. However, for the RoW there have slightly been moderate increase in share of imports from about 71 percent in 2001 to 82 percent in 2021. For the entire period, EAC accounted about 5 percent of total imports, EU about 15 percent and RoW 80 percent. All these are augmenting what we have seen in the descriptive statistics section, that the bulk of Tanzania trade is with the markets outside of EAC, with the rest of the world.

Figure 2: Tanzania Export and Import share with EAC, EU and RoW



Notes. Graphs show a three-year moving average in exports and imports share with the EAC and EU countries from 2001-2020.

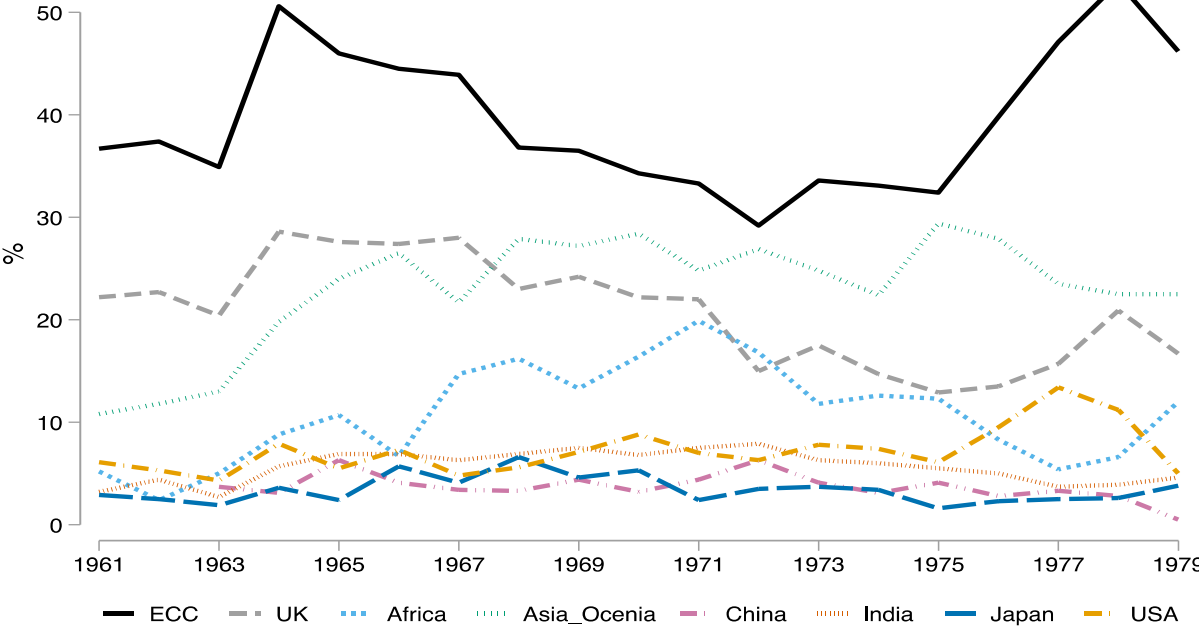
Source: Authors computation based on Trade Map data.

Apart from overall trend in trade with the EAC, EU and RoW markets, it is also critically important to get a feeling which countries in the EU Tanzania has been trading with the most over the period and whether such pattern has been changing over time. However, it will be important first if we look the pattern into retrospective (1961 – 1980) earlier twenty years after independence before focusing into the current period of the past two decades (2001 – 2020).

As shown in Figures 3, the destination of Tanzania exports, and hence the major trading partners, in earlier years of independence (1960s to 1980s) has been with the European Economic Community (EEC – which is now EU) accounting to between 40 and 50 percent of total exports. Of these, UK has been the single most important market destination compared to other countries, both within and outside the EEC, as it accounted between

20 and 28 percent of total exports; implying that Tanzania exports markets were highly concentrated as they heavily relied on EEC and UK markets. Other major export market destinations during this period included Asia and Ocean in particular India, Hong-Kong, Japan and China Mainland, Africa in particular Kenya, Uganda and Zambia and America in particular USA (BoT, 1981).

Figure 3: Tanzania’s Exports by Country of Destination, 1960 to 1980



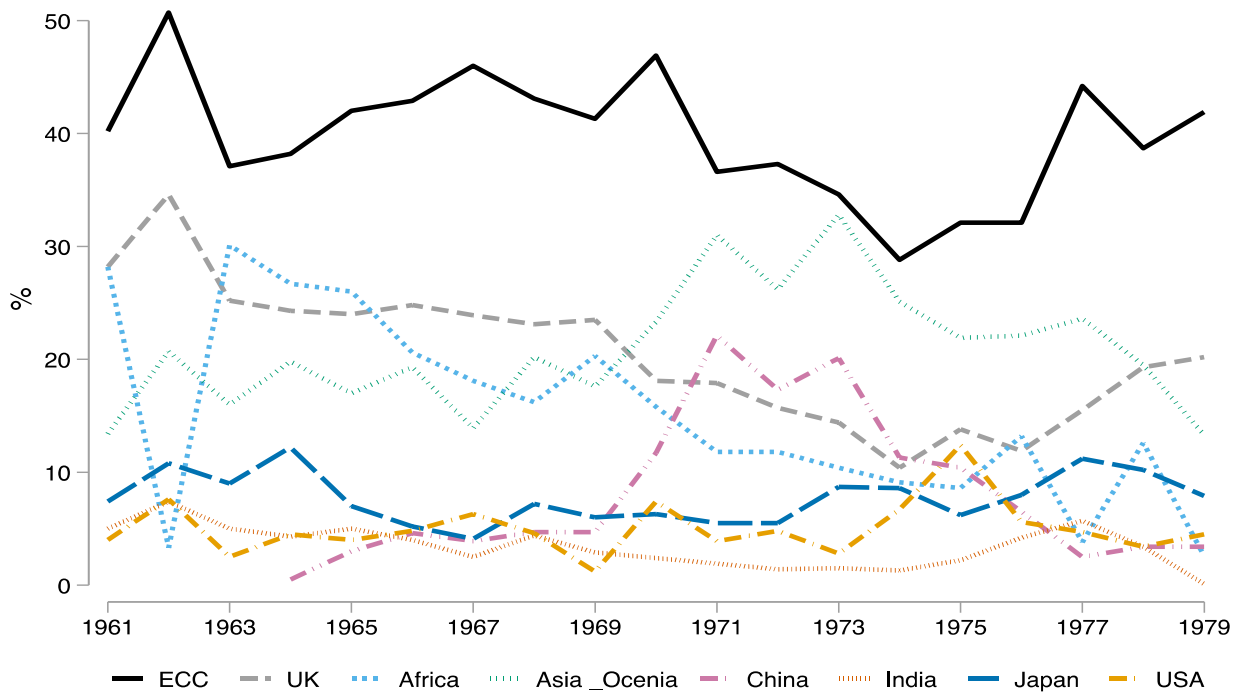
Source: Author’s Own Compilation based on data from Bank of Tanzania (1961 – 1981)

During this period (1960s to 1980s) the main exports have been traditional or primary products that accounted up to 70 percent of total exports. This includes products such as coffee, tea, cotton, sisal, cashew-nuts, tobacco, cloves, hides, and skins and oil seeds and nuts. Non-traditional exports accounted only about 11 percent of total exports during this period, which mainly were minerals in particular diamond, followed by light manufactured exports that accounted for 8 percent of total exports that include textiles, sisal products, meat and meat preparation, cereal and cereal preparation, sugar, sugar

preparation and honey, animal foodstuffs and chemical. And exports of petroleum products accounted 5 percent of total exports during this period (BoT, 1981).

When coming to imports, as it has been for the case of exports during the period (1960s to 1980s), the major source of Tanzania imports has been EEC that accounted between 40 and 50 percent of total imports. As shown in Figures 4, of this, UK has been as single country that accounted for the largest share of total imports as it accounted between 20 and 30 percent of total imports. As for other countries, they have been almost the same countries as it was for exports destination during this period, for Asia and Oceania – China, Japan, and India, for Africa – Kenya, Uganda, and Zambia and for America – USA; indicating that Tanzania imports during this period was highly concentrated on a handful of few countries (BoT, 1981).

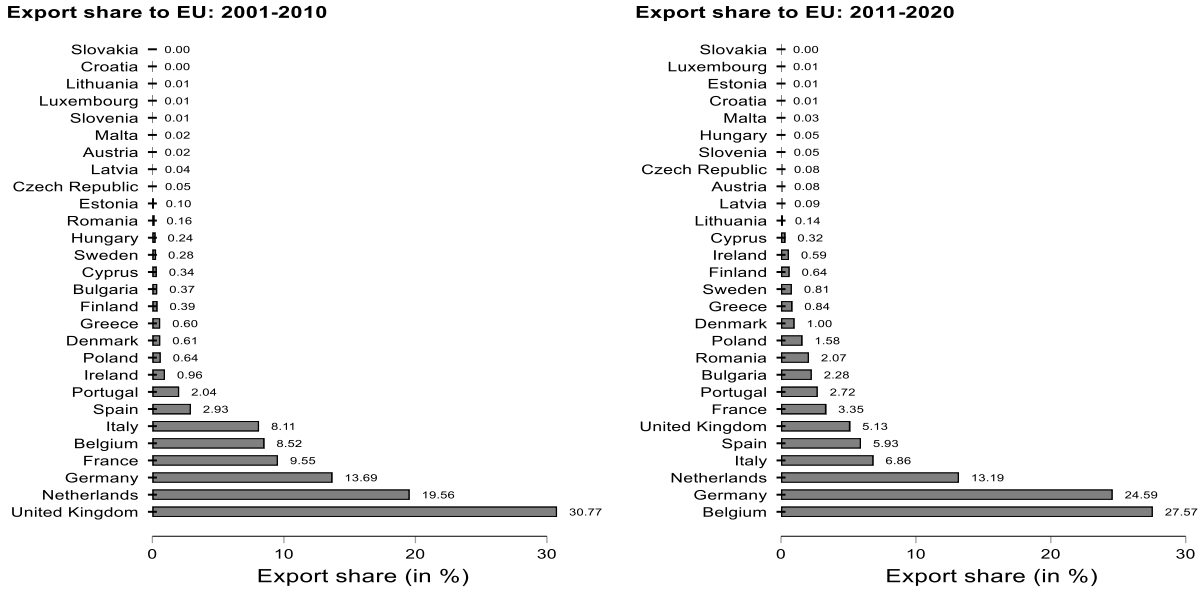
Figure 4: Tanzania’s Imports by Country of Origin, 1960 to 1980



Source: Author’s Own Compilation based on data from Bank of Tanzania (1961 – 1981)

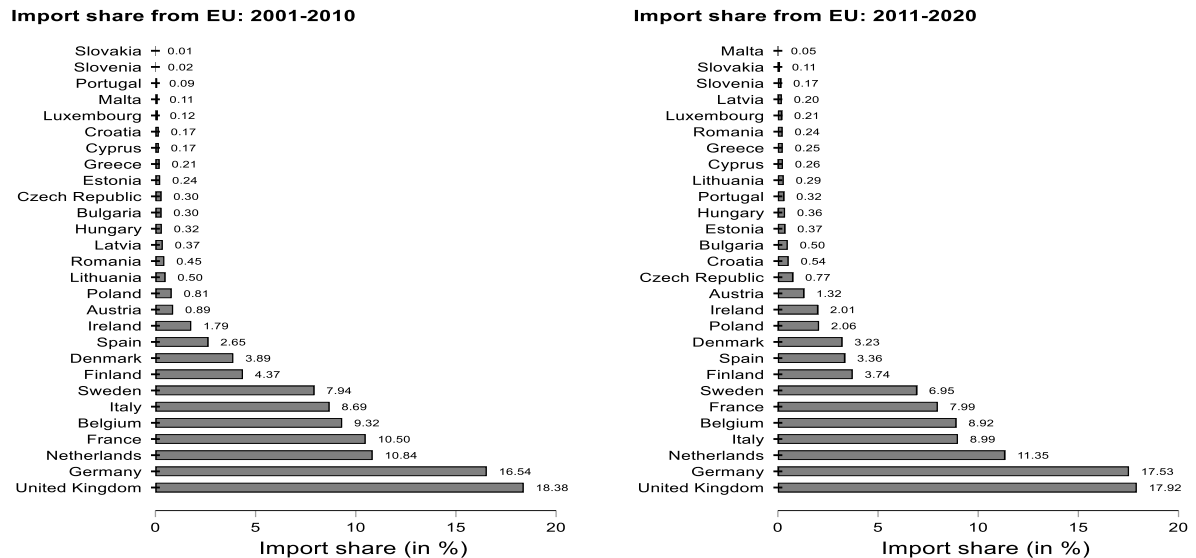
Again, what Tanzania has been importing during this period (1960s to 1980s) was to a larger extent different from what it was exporting. Major imported goods were machinery and transport equipment that accounted between 25 and 35 percent of total imports, which mainly included non-electrical machinery and transport equipment. This was followed by manufactured goods that accounted between 20 and 38 percent of total imports that include paper and paper products, textile from fabric and goods, non-metallic minerals goods, iron and steel, non-ferrous metallic and metal goods. Others imported goods were food and live imports that accounted between 5 and 17 percent of total imports and minerals fuels and lubricants which accounted between 2 and 14 percent of total imports.

Figure 5: Export share to EU by Sources: 2001-2010 and 2011-2020



Notes: The Figure presents the export share (in percent) to EU market by country. The left Figure reports the share for the period from 2001 to 2010 and the right Figure report the share for the period from 2011 to 2020. **Source:** Authors computation based on Trade Map.

Figure 6: Import share from EU by Sources: 2001-2010 and 2011-2020



Notes: The figure report the import share (in percent) from the EU market by country. The left Figure reports the share for the period from 2001 to 2010 and the right Figure report the share for the period from 2011 to 2020. **Source:** Authors computation based on Trade Map data.

Even though, over time, there have been substantial change, especially from 1990s and 2000s onwards for export market destinations as well as for import market sources, so is the diversification of what is exported to and imported from these markets. During this period the top 15 destination markets for Tanzania exports that accounted about 85 percent of total exports have been (in sequence of importance) India (20 percent), South Africa (15 percent), Kenya (10 percent), China (8 percent), Switzerland, Germany, Netherlands, Belgium, UAE, Japan, Uganda, DRC, USA, Zambia, and Vietnam (the UK), implying significant drop in the importance of EU's and in particular UK's markets for Tanzania exports. There has been as well a significant change for the Tanzania import markets sources. During this period the top 15 sources of Tanzania imports that accounted to about 80 percent of total imports (in the sequence of importance) have been China (20 percent), India (15 percent), UAE (10 percent), South Africa (5 percent),

Kenya (4 percent), Switzerland, Netherlands, Japan, Turkey, USA, Malaysia, Indonesia, UK, Thailand, and Russia. Again, EU and so UK importance as source of Tanzania imports has fallen significantly (BoT, 2011). All these will have important ramifications when Tanzania negotiating EPA in the EU-EAC block and given the Brexit factor as well.

We now turn to what happened in the EU markets for the past 20 years. For the first part of the past 20 years (i.e., 2001 to 2010), as shown in the left panel of Figure 5, UK, as it was for the early days after independence has remained as the major export destination of Tanzania exports accounting to about 31 percent of its total exports to EU markets. This is followed by Netherlands – 20 percent, Germany – 14 percent, France – 10 percent, Belgium – 9 percent and Italy – 8.1 percent. All other remaining countries in the EU accounted for less than 3 percent of total EU markets.

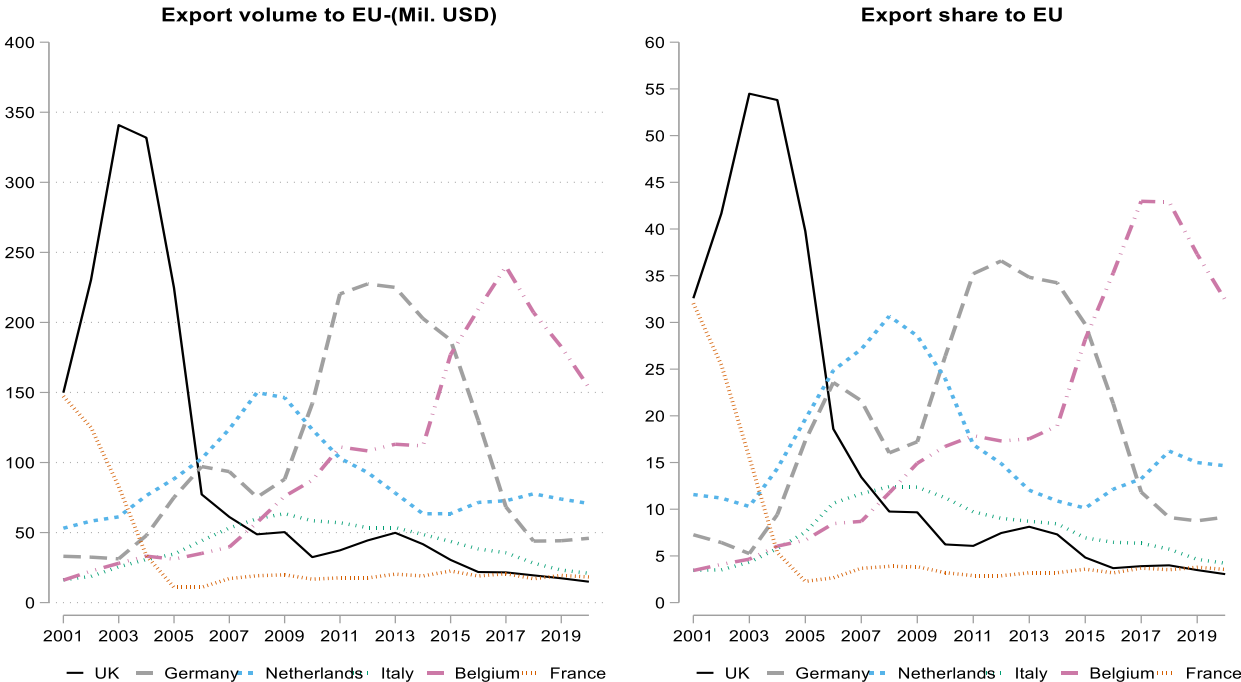
However, more recently (i.e. 2011 to 2020), though the top 6 export market destinations have remained nearly the same countries, their ranking position have changed substantially, however. Tanzania 6 top exports destination in the EU markets now are Belgium that accounted about 28 percent, Germany – 24.6 percent, Netherlands – 13 percent, Italy – 7 percent, Spain – 6 and UK – 5 percent. Thus, UK importance as number one export market destination in the EU market have since then seen the biggest dropped since 1960s and early 2000s, where it accounted nearly 30 percent of all Tanzanian exports in the EU markets to an average of 5 percent during this period, from 2011 to 2020.

Figure 6 presents the import share from EU markets by countries from 2001 to 2010, as shown in the left panel. The right panel in the Figure shows the import share from 2011 to 2020. Over the entire period, from 2001 to 2020, the top three import sources of Tanzania imports in EU markets have been UK – 18 percent, Germany – 17 percent and Netherlands – 11 percent. Thus, from early 1960s to 1990s and early 2000s to to-date, UK has remained the dominant sources of Tanzania imports in the EU markets. Besides UK, Germany and Netherlands, the other countries in important that relatively account

substantial share of imports in EU include France, Belgium, Italy, and Sweden. All having a share of at least five percent.

Though is somewhat too early to predict and be conclusive, what will be happening with Tanzania ratifying and implementing the EPA deal in the EU-ECA negotiations, given this trend it seems as that exports to EU markets will further drop as they are now facing reciprocity. Imports from EU markets, especially from the UK, on the other hand might increase substantially as now they will not face any tariff barriers, such that relatively high quality and cheaper imports from EU markets will be now competing with domestic industries.

Figure 7: Trend in export volume and share to EU for top 6 sources: 2001-2020

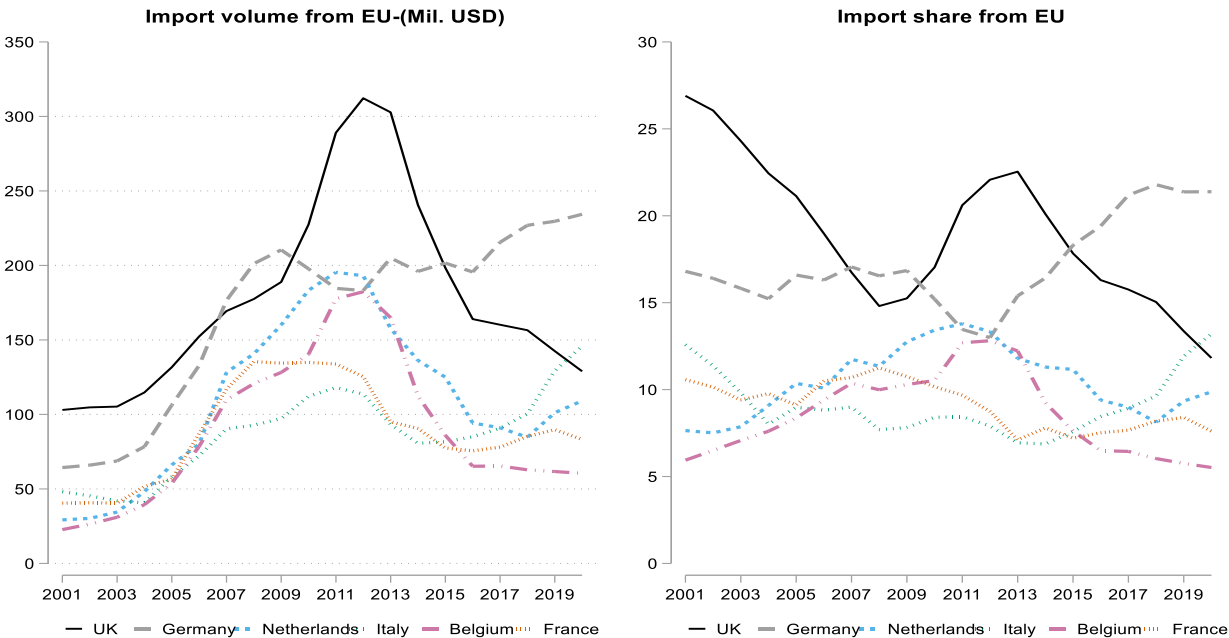


Notes: The graphs show a three-year moving average in export volume and share to the EU for the top five sources.

Source: Authors computation based on Trade Map data.

We also investigate how these top-6 EU countries that are trading with Tanzania have been performing during this period, both in terms of volume and share of exports and imports. This is as shown in Figures 7 – 8, where we have the volume in the left panel and the share in right panel. In Figure 7 for the case of exports we observe that while exports from Tanzania that has started at higher level has been declining, that of other countries have been increasing over time, and the trend similar both for the volume as for the share of exports. Taking the case of UK for example, the export volume increased from USD 150 million in 2001 to USD 340 million in 2002, thereafter declined to a value of USD 10 million by 2020. Most of other countries have seen an increase of exports for certain period before declining and pick up again, such as the trend is very unpredictable. Unravelling what has been the cause for this unstable and unpredictable is important to further gauge what need to be done if Tanzania is to be benefit from EPA deal.

Figure 8: Trend in import volume and share from EU for top 6 sources: 2001-2020



Notes: The graphs show a three-year moving average in export volume and share to the EU for the top five

sources.

Source: Authors computation based on Trade Map data.

When coming to Tanzania imports from EU markets during this period, the trend become a bit interesting. Though increasing and the falling in volume, hence inverted - U shape trend for imports from UK, yet the imports from UK was the largest compared to other countries, up until 2105 when it was overtaken by Germany in volume. And while the imports from UK first increase, reach climax and then dropped continuously, that of other countries declined and then pick up as of the recent.

6. Results and Discussion

6.1 The Trade Effects of EPA

We start the discussion of the main findings by looking at the trade (imports) effects of EPA in this section. Throughout our analysis, we use the import source substitution elasticity of 0.5 unless stated otherwise. Table 3 presents the effects of EPA deal on the aggregate imports from the EU markets for the case of Tanzania. As presented in the empirical model, imports from EU markets may increase as the result of concluding the EPA deal due to three channels: consumption expansion effects (following elimination of tariff charged on the EU products - correspond to M_2M_3 in Figure 1); trade creation effect as the result of shift in trade from less efficient PTA countries to more efficient EU producers and trade diversion effect as the result of the shift in trade from more efficient RoW to less efficient EU countries.

Table 3: Trade Effects of EPA

	ΔM^C	ΔM^{TC}	ΔM^{TD}	TOTAL	% of
	(1)	(2)	(3)	(4)	pre-EPA M
<i>Panel A: Full Liberalization</i>					
2016	9.62	12.58	291.38	313.57	4.08
2017	11.09	11.89	251.90	274.88	3.57
2018	12.08	14.50	272.10	298.68	3.51
2019	13.49	15.05	277.33	305.87	3.37
2020	21.47	16.71	265.80	303.97	3.59
<i>Panel B: Partial Liberalization (Exclude sensitive items: EAC CET)</i>					
2016	9.62	11.79	232.86	254.26	3.31
2017	11.09	10.85	201.26	223.20	2.89
2018	12.08	13.80	223.92	249.80	2.93
2019	13.49	14.56	234.60	262.65	2.89
2020	21.47	16.17	215.67	253.30	2.99
<i>Panel C: Partial Liberalization (Exclude sensitive items: EAC CET) + all items with MFN 30%+</i>					
2016	9.61	9.49	231.44	250.53	3.26
2017	11.07	8.76	199.28	219.12	2.84
2018	12.07	12.85	222.59	247.50	2.91

2019	13.43	13.88	233.11	260.43	2.87
2020	21.43	14.76	214.26	250.45	2.95

Notes: All figures are in millions of USDs. Sensitive items include all sensitive products specified in East Africa community common external tariff guidelines. See a list of sensitive codes in Appendix Table A5. ΔM^C -denote consumption effects, ΔM^{TC} -Trade Creation Effect and ΔM^{TD} -Trade Diversion Effects, and pre-EPA M are the pre-EPA Tanzania total imports

Source: Authors computation based on Trade Map data.

Table 3 presents the estimate of the imports from EU as the effects of EU--EAC EPA agreement due to consumption expansion effect ($+\Delta M^C$) from equation 1, trade creation effect (ΔM^{TC}) from equation 3 and trade diversion effect (ΔM^{TD}) from equation 4. Following Milner *et al.*, (2005), we estimate the consumption effects from the sectors for which the EU is dominant supplier, trade diversion from the sectors for which RoW is the dominant supplier and trade creation effects from the sectors that PTA (EAC) supply for at least 20 percent and above. The TOTAL column shows the total increase in aggregate imports due to expansion effects, trade creation and diversion effects. The last column present change in import due to EPA as a share of pre-EPA imports. We estimate the effects on aggregate imports under three assumptions: full liberalization (panel A) and partial liberalization excluding sensitive items (panel B) and partial liberalization excluding sensitive items plus those items with MFN tariff rate of 30 percent and above (panel C).

While most partial equilibrium effects are based on the most current period, for our case we decide to estimate the effects for the last five years, from 2016 to 2020, to allow for comparison over time as well as accounting for any possible shocks of imports from EU markets and other market sources, which may understate or overstate our estimates. In Column 1, we present consumption expansion effect of EPA agreement on aggregate imports from the EU markets, only for the products which EU is a dominant supplier. As shown in panel A, the effect may range from USD 9.62 million in 2016 to USD 21.5 million in 2020 under full liberalization, which on average is to equivalent to USD 14 million for

past five years.⁵ Ignoring trade creation and trade diversion effects, the pure consumption effect under the full liberalization would account for about 2% of the current imports from the EU (21.47/1,142.07) and 1% of the total Tanzania imports (21.47/2,636) in 2020. Excluding the sensitive goods (as in EAC–CET), as shown in panel B, the estimates now ranges from USD 9.61 million in 2016 to USD 21.4 in 2020, on average an equivalent to USD 13.4 million, for the past five years. There are, however, no noticeable consumption effects if all products charged 30 percent and above tariff rates are added and treated as sensitive goods.⁶

Column 2 presents the changes in aggregate imports due to trade creation (ΔMT^C) based on equation 2 ($k=PTA/EAC$) with import substitution assumed to be 0.5. Under full liberation, the trade creation due to substitution of imports from less efficient EAC producers to more efficient EU suppliers ranges from USD 12.57 million in 2016 to USD 16.7 million in 2020, an average of USD 14 million for the past five years. Excluding sensitive items, the trade creation amount to USD 16.2 million in 2020 (panel B) and USD 14.8 million in 2020 (Panel C) for sensitive items plus those with MFN tariff rate 30 percent and above. When coming to the trade diversion (ΔMT^D) in Column 3, the aggregate import changes amount to USD 265.8 million under full liberalization (panel A), dropping to USD 215.67 million under sensitive items and further to USD 214.3 million when allowing for sensitive items plus those with MFN tariff rate 30 percent and above (panel C).

⁵ When consider all products (dominant and non-dominant imports from EU) the effect may range from USD 108.8 million in 2016 to USD 127.3 million in 2020 under full liberalization, which is equivalent to USD 115 million on average for past five years, implying on average for past 5 years, the imports from EU markets increased by 8 % compared to the baseline without EPA. Ignoring trade creation and trade diversion effects, the pure consumption effect would account for about 11.2% of the current imports (in 2020) from the EU (127.87/1,142.07) and 5% of the total Tanzania imports (127.87/2636) under the full liberalization.

⁶When consider all products (dominant and non-dominant imports from EU), after excluding the sensitive goods (as in EAC–CET), the estimates now range from USD 99.8 million in 2016 to USD 121.9 in 2020, an equivalent to USD 105 million for the past five years. There are, however, no noticeable consumption effects if all products charged 30 percent and above tariff are added and treated as sensitive goods as well. What this implies is that, on average, the imports from EU markets increased by 7 percent compared to baseline without EPA.

Overall, the import from EU markets will increase by USD 303.97 million if the EU–EAC EPA negotiations deal is reached under full liberalization for imports from EU markets, an equivalent to 4 percent of Tanzania baseline imports without EPA. Allowing for partial liberalization, where sensitive items and those products with MFN tariff rate of 30 percent and above, import from EU markets will increase by either USD 253.3 million (panel B) or USD 250.5 million (panel C), which is equivalent to 3 percent of Tanzania baseline imports without EPA.

Table 4 present the estimate for the trade effects of EPA by sectors using the year 2019 estimates (to avoid the Covid19 shocks in 2020). Our estimates show that the consumption expansion effect under full liberalization in Column 1 will increase significantly for products in machinery and electrical, foodstuffs, vegetable products, metals and chemical allied industries. For trade creation, the effects will be higher for chemical and allied industries, metals, vegetable products, plastics and rubber products and food stuffs. While higher trade diversion effects will be experienced for mineral products, transportation, metals, machinery and electrical products and textiles. Our conclusion on the sectors that will experience higher effects does not change with partial liberalization that exclude all sensitive products and all products with tariff rate of 30 percent and above.

Table 4: Trade Effects of EPA by Sectors

Sectors	Full			Partial -1 (CET)			Partial-2 (CET & 30+)		
	ΔM^C (1)	ΔM^{TD} (2)	ΔM^{TC} (3)	ΔM^C (1)	ΔM^{TD} (2)	ΔM^{TC} (3)	ΔM^C (1)	ΔM^{TD} (2)	ΔM^{TC} (3)
Animal & Animal Products	0.19	1.31	0.70	0.19	0.53	0.29	0.14	0.15	0.09
Vegetable Products	2.05	23.68	1.02	2.05	20.35	1.02	2.04	20.02	1.01
Foodstuffs	3.95	24.86	0.87	3.95	5.45	0.79	3.95	4.68	0.33
Mineral Products	0.03	43.99	0.43	0.03	43.99	0.43	0.03	43.99	0.43
Chemicals & Allied	1.34	7.11	5.49	1.34	7.11	5.49	1.34	7.11	5.49

Industries									
Plastics / Rubbers	0.00	15.76	0.92	0.00	15.76	0.92	0.00	15.76	0.92
Raw Hides, Skins, Leather, & Furs	0.00	1.40	0.00	0.00	1.40	0.00	0.00	1.40	0.00
Wood & Wood Products	0.01	7.36	0.50	0.01	7.36	0.50	0.01	7.36	0.50
Textiles	0.04	31.56	0.11	0.04	13.52	0.11	0.04	13.52	0.11
Footwear / Headgear	0.00	3.87	0.08	0.00	3.87	0.08	0.00	3.87	0.08
Stone / Glass	0.00	7.07	0.09	0.00	7.07	0.09	0.00	7.07	0.09
Metals	1.73	34.82	4.82	1.73	34.82	4.82	1.73	34.82	4.82
Machinery / Electrical	4.10	27.68	0.00	4.10	26.52	0.00	4.10	26.52	0.00
Transportation	0.00	38.00	0.00	0.00	38.00	0.00	0.00	38.00	0.00
Miscellaneous	0.06	8.85	0.01	0.06	8.85	0.01	0.06	8.85	0.01

Notes: The table reports the trade effects of EPA by sectors for 2019. All figures are in millions of USDs. Sensitive items (in partial CET) include all sensitive products specified in East Africa community common external tariff guidelines and in addition Partial-2 (CET & 30+). Exclude all products with tariff rate above 30 percent See a list of sensitive codes in Appendix Table A5. ΔM^C -denote consumption effects, ΔM^{TC} -Trade Creation Effect and ΔM^{TD} -Trade Diversion Effects.

Source: Authors computation based on Trade Map data.

6.2 Revenue Effects of EPA

We discuss the implications of the EPA agreement on Tanzania revenue in this section. It has been anticipated that Tanzania will lose a portion of its revenue due to elimination of the MNF tariff rates currently charged on imports from EU countries. The revenue loss may be as the result of increased import from EU markets due to price decline following the elimination of tariffs (price effects of EPA); and it will be also as the result of trade creation and diversion due to the EU–EAC EPA deal. A reduction in revenue will have severe budgetary implications. Currently, in Tanzania, the import tariff revenue, as shown in panel A in Table 5, accounts for about 7.64 percent of total tax revenue, about 4.71 percent of the total budget and about 0.92 percent of GDP as by the year 2020.

Table 5: Shares of Duty and Trade Taxes in Total Revenue, Budget and GDP: 2015-2020

	2016	2017	2018	2019	2020
<i>Panel A: Import duty as share of:</i>					

Total tax revenue	7.27	7.51	7.89	7.35	7.64
Total budget (Actual)	.	5.67	5.59	5.6	4.71
GDP	.96	.98	0.97	.94	.92
<i>Panel B: Trade taxes as share of:</i>					
Total tax revenue	40.4	40.77	40.56	38.63	41.81
Total budget (Actual)	.	30.77	28.74	29.41	25.75
GDP	5.34	5.3	4.97	4.95	5.05

Notes: The table shows trends in import duty as share of total revenue, budget (Actual expenditure) and Gross domestic product (GDP) at current market prices. Import duty includes tariff collection on includes only import tariff revenue and trade taxes includes import duty, excise duty on import, VAT on imports and other import charges.

Source: Tanzania Revenue Authority, National tax statistics 2020/21

We estimate revenue effects based on four scenarios: revenue from current imports; under consumption effects; under-trade creation and trade diversion effects. Furthermore, the revenue loss also will be different depending on whether the EPA agreement allows for full or partial liberalization. We first estimate the revenue loss implication assuming full liberalization under the EU- EAC EPA deal, where all products from the EU markets are assumed to be tariff-free. For partial liberalization estimation we exclude all products declared as sensitive items as in the EAC–CET in the first place, and in addition add those with MFN tariff rates 30 percent and above as sensitive products; only excluding arms and ammunition in both partial estimates. We estimate the revenue loss for the last five years to account for any possible import shocks for a given year.

Table 6 present the estimated revenue loss for Tanzania as the result of ratifying and concluding EU-EAC EPA deal. Estimates in column *M0* account only for current imports from EU countries assuming full or partial liberalization with EPA. Columns $+\Delta M^C$ estimates account for the current imports and consumption effects of EPA. The $+\Delta M^{TD}+\Delta M^{TC}$ columns include trade diversion and creation in estimating the revenue loss due to EPA. Assuming full-trade liberation, zero consumption effects, trade creation and trade diversion, our estimates show that Tanzania will experience, on average, for the past five years a revenue loss of about USD 69.8 million under current imports effect (*M0*)

from EU countries, that increases to USD 72.1 million under current imports plus consumption effect (+ ΔM^C). The loss increases further to USD 139.0 million when accounting for trade diversion and trade creation (+ $\Delta M^{TD} + \Delta M^{TC}$). This is equivalent TShs 309,970 billion (using the 2020 yearly official exchange rate of 2230 as per Central Bank); which is equivalent to about 1.6 percent of total tax revenue, 1 percent of total budget and 0.2 percent of GDP. It should also be noted that our estimates on revenue loss with trade diversion and creation might be sensitive to some restrictive assumptions on the degree of substitutability between EU imports, imports from EAC Partner States and imports from the Rest of the World.

Table 6: The Revenue Effects of EPA

Year	Full			Partial -1 (EAC-CET)			Partial-2 (EAC-CET & 30+)		
	M0	+ ΔM^C	+ $\Delta M^{TD} + \Delta M^{TC}$	M0	+ ΔM^C	+ $\Delta M^{TD} + \Delta M^{TC}$	M0	+ ΔM^C	+ $\Delta M^{TD} + \Delta M^{TC}$
2016	68.3	69.7	153.6	54.0	55.4	98.8	53.5	54.9	97.0
2017	63.4	64.9	134.5	51.8	53.3	89.3	51.1	52.6	87.2
2018	78.4	79.9	152.6	58.2	59.8	98.1	57.4	59.0	96.4
2019	66.3	68.4	135.3	60.2	62.3	101.7	59.7	61.7	100.4
2020	69.8	72.1	139.0	63.2	65.5	103.7	62.8	65.1	102.3

Notes: All Figures are in millions of USDs. The estimates in columns labeled "**full**" assume full liberalization with the EU markets. The **partial-1** estimates exclude all sensitive goods in EAC-CET and estimates in **partial-2** columns exclude all sensitive products in EAC-CET, arms and ammunition, and all products with MFN tariff 30 percent and above. Estimates in column **M0** account for only current imports from EU countries assuming full liberalization with EPA. Columns + ΔM^C estimates account for the current import plus consumption effects of EPA. The + $\Delta M^{TD} + \Delta M^{TC}$ also includes trade diversion and creation in estimating the revenue loss due to EPA.

Source: Authors computation based on Trade Map data.

In columns labeled Partial -1, we present the estimates that exclude EAC–CET sensitive items. In so doing, on average, for the past five years, our estimates show that the revenue loss now decreases to USD 57 million, under current imports effect (*M0*) from EU countries and to USD 83 million under current imports plus consumption effect ($+\Delta M^C$); and when allowing for trade diversion and trade creation ($+\Delta M^{TD}+\Delta M^{TC}$) the loss decrease to USD 148 million. For the year 2020 and in TShs 330,040 billion, this is equivalent to about 1.4 percent of total tax revenue, 1 percent of total budget and 0.2 of GDP. The estimates under columns labeled Partial – 2, where in addition to sensitives items we also add all products with MFN tariff of 30 percent and above are not significantly different from what we get under the Partial – 1 estimates.

Looking at the revenue effects of EPA sector-wise, our estimates in Table 7 shows that the effects in USD millions will be higher for foodstuffs with revenue loss of about 31.17, metals by 19.57, machinery and electrical by 18.55, textiles by 13.3, transportation 11.40 and vegetable product by 9.12. However, after excluding sensitive products under EAC-CET, the effects decline significantly for foodstuff and textiles sectors. This is in line with the fact higher number of sensitive products are in these two sectors, see Appendix Table A5.

Table 7: Revenue Effects of EPA by Sectors

Sectors	Full	Partial -1 (EAC-CET)	Partial-2 (EAC-CET & 30+)
Animal & Animal Products	1.85	0.88	0.54
Vegetable Products	9.12	7.94	7.80
Foodstuffs	31.17	9.68	8.87
Mineral Products	3.85	3.85	3.85
Chemicals & Allied Industries	6.94	6.94	6.94
Plastics / Rubbers	6.89	6.89	6.89
Raw Hides, Skins, Leather, & Furs	0.41	0.41	0.41
Wood & Wood Products	3.71	3.71	3.71
Textiles	13.39	3.80	3.80

Footwear / Headgear	1.04	1.04	1.04
Stone / Glass	3.75	3.75	3.75
Metals	19.57	19.57	19.57
Machinery / Electrical	18.55	18.14	18.14
Transportation	11.40	11.40	11.40
Miscellaneous	3.66	3.66	3.66

Notes: The table reports the revenue effects of EPA by sectors for 2019. All figures are in millions of USDs. Sensitive items (in partial CET) include all sensitive products specified in East Africa community common external tariff guidelines and in addition Partial-2 (CET & 30+). Exclude all products with tariff rate above 30 percent See a list of sensitive codes in Appendix Table A5. All estimates of revenue loss include the possible loss due to consumption effects (ΔM^C), Trade Creation Effect (ΔM^{TC}) and Trade Diversion Effects (ΔM^{TD}).

Source: Authors computation based on Trade Map data.

The effects of reciprocal agreements with the EU on trade and revenue depend on the degree of substitutability between import from the EU and that from PTA and the RoW. This imply that our estimated effects are restrictive on the assumption we make about the degree of substitutability. In turn, we also estimate the effects on revenue with varying degree of substitutability and presents the results in Table 8. Column 1 presents the varying degree of substitutability of import source substitution (σ), from the lowest (0.0) to the medium (0.5) and to the highest (1.0). We use data from the 2020 (the most current period) for the simulation. Estimates in Column labeled 'Full' assumes full liberalization with the EU markets, and in Colum labeled Partial -1 (CET) excludes sensitive items as documented in EAC-CET and in addition Column labeled Partial -2 (CET & 30+) exclude all goods with a tariff rate of 30 and above.

Estimates with zero import source substitution between PTA and RoW markets with EU markets imply no trade diversion and substitution, there is only consumption effects - corresponding to Column labeled $+\Delta M^C$ for the year 2020 in Table 8. Since we have estimated the 0.5 import source substitution elasticity for all our previous results, the estimates are equivalent to that presented in Table 6 in Columns ($+\Delta M^{TD}+\Delta M^{TC}$). As shown, with full liberalization Tanzania is expected to lose about USD 72.1 million under

import source substitution elasticity 0.0 to 205.96 million import source substitution elasticity 1.0. Under partial liberation (Column 2), the loss is expected to be between USD 65.5 million and USD 141.92 million after excluding sensitive goods and between USD 65.1 and USD 139.6 million in addition to excluding all products charged tariff rate of 30 percent and above. In essence, our estimates with 0.5 import substitution present the median revenue effects and thus show that the revenue effects due to EPA will largely depend on the degree of substitutability between EU imports and imports from PTA (EAC) and RoW.

Table 8: The Revenue Effects of EPA: SIMULATION WITH SIGMA

Import source substitution elasticity (1)	Full (2)	Partial -1 (EAC-CET) (3)	Partial-2 (EAC-CET & 30+) (4)
0.0	72.10	65.54	65.10
0.1	85.49	73.18	72.55
0.2	98.88	80.82	79.99
0.3	112.26	88.46	87.44
0.4	125.65	96.09	94.88
0.5	139.03	103.73	102.33
0.6	152.42	111.37	109.77
0.7	165.81	119.01	117.21
0.8	179.19	126.65	124.66
0.9	192.58	134.29	132.1
1.0	205.96	141.92	139.55

Notes: Table report the simulated revenue effects with varying import source substitution elasticity (column 1). All figures are in millions USD. The estimates in columns labeled "**full**" assume full liberalization with the EU markets. The Partial -1 (CET) estimates exclude all sensitive goods in EAC-CET and estimates in **partial-2** columns exclude all sensitive products in EAC-CET, arms and ammunition, and all products with MFN tariff 30 percent and above. Estimates in column **MO** account for only current imports from EU countries assuming full liberalization with EPA. Columns $+\Delta M^C$ estimates account for the current import plus consumption effects of EPA. The $+\Delta M^{TD}+\Delta M^{TC}$ also includes trade diversion and creation in estimating the revenue loss due to EPA.

Source: Authors computation based on Trade Map data.

We further expand our analysis on the implications of the EPA agreement on revenue loss by estimating the revenue loss as a percentage of the total import duty revenue (Panel A), total revenue (panel B), total government budget/actual expenditure (Panel C) and GDP (Panel D) as presented in Table 9. Taking the average for the past five years and under full liberation, our estimates shows that the revenue loss will account about 12.8 percent under current imports effect (M0), increasing to about 13.1 percent under consumption effect (+ ΔM^C) and increased even more significant when allowing trade diversion and trade creation to about 26.6 percent of total import duty revenue. In sum, the revenue loss is expected to be between 32.3 percent in 2016 and 23.4 percent in 2020. The estimates are closer to the estimated revenue loss by Karingi *et al.* (2005) which found a loss of about 37 percent of Tanzania import duty revenue.

Table 9: The Revenue Loss as % of Import Duty, tax Revenue, Budget and GDP

Year	Full			Partial -1 (EAC-CET)			Partial-2 (EAC-CET & 30+)		
	M0	+ ΔM^C	+ $\Delta M^{TD} + \Delta M^T$	M0	+ ΔM^C	+ $\Delta M^{TD} + \Delta M^T$	M0	+ ΔM^C	+ $\Delta M^{TD} + \Delta M^T$
<i>Panel A: Revenue loss as share of total import duty</i>									
2016	14.3	14.6	32.3	11.4	11.6	20.8	11.3	11.5	20.4
2017	12.2	12.5	26.0	10.0	10.3	17.2	9.9	10.2	16.8
2018	14.3	14.6	27.8	10.6	10.9	17.9	10.5	10.8	17.6
2019	11.6	11.9	23.6	10.5	10.9	17.8	10.4	10.8	17.5
2020	11.7	12.1	23.4	10.6	11.0	17.5	10.6	11.0	17.2
<i>Panel B: Revenue loss as share of total revenue</i>									
2016	1.0	1.1	2.3	0.8	0.8	1.5	0.8	0.8	1.5
2017	0.9	0.9	2.0	0.8	0.8	1.3	0.7	0.8	1.3
2018	1.1	1.2	2.2	0.8	0.9	1.4	0.8	0.8	1.4

2019	0.9	0.9	1.7	0.8	0.8	1.3	0.8	0.8	1.3
2020	0.9	0.9	1.8	0.8	0.8	1.3	0.8	0.8	1.3

Panel C: Revenue loss as share of total government budget (Actual)

2017	0.7	0.7	1.5	0.6	0.6	1.0	0.6	0.6	1.0
2018	0.8	0.8	1.6	0.6	0.6	1.0	0.6	0.6	1.0
2019	0.6	0.7	1.3	0.6	0.6	1.0	0.6	0.6	1.0
2020	0.6	0.6	1.1	0.5	0.5	0.8	0.5	0.5	0.8

Panel D: Revenue loss as share of GDP (current prices)

2016	0.1	0.1	0.3	0.1	0.1	0.2	0.1	0.1	0.2
2017	0.1	0.1	0.3	0.1	0.1	0.2	0.1	0.1	0.2
2018	0.1	0.1	0.3	0.1	0.1	0.2	0.1	0.1	0.2
2019	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2
2020	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2

Notes: The Tables shows the revenue loss due to EPA deal as share of total import duty, total revenue, government budget (actual spending) and GDP at current market prices. All figures are in percent. The estimates in columns labeled "**full**" assume full liberalization with the EU market. The **Partial -1 (CET)** estimates exclude all sensitive goods in EAC common external tariff (EAC CET) and estimates in **Partial-2 (CET & 30+)** columns exclude all sensitive products in EAC CET, arms and ammunition, and all products with MFN tariff of 30 percent and above. Estimates in column **MO** account for only current imports from EU countries assuming full liberalization with EPA. Columns $+\Delta M^C$ estimates account for the current import plus consumption effects of EPA. The $+\Delta M^{TD}+\Delta M^{TC}$ also includes trade diversion and creation in estimating the revenue loss due to EPA

Source: Authors computation based on Trade Map data.

Under the partial liberalization, on average, the revenue loss is about 10 percent under current imports effect (**MO**), increasing to about 11 percent after factoring in consumption effect ($+\Delta M^C$) and increase further to 17 percent when allowing trade diversion, and trade creation. No substantial changes are noted after treating all products with higher than 30 percent tariff as sensitive goods.

Looking at the revenue loss as share of total revenue (panel B), the estimated revenue loss account to about 0.9 percent under full liberation with only current imports. Including the possible consumption effects as well as trade diversion and creation raises the share to 1 and 2 percent of the total revenue, respectively. Under partial liberation, the effects become relatively lower to about 0.8 percent for current imports only (M0) to 1.1 with consumption effects ($+\Delta M^C$) and further to 1.3 percent with trade diversion and creation ($+\Delta M^{TD}+\Delta M^{TC}$). There are, however, no substantial changes on these estimates if we add product with MFN tariff rates of 30 percent and above to sensitive products.

When looking on total government budget (Panel C), the estimates show that revenue loss will account to about 0.6 percent for current imports only, 0.6 with consumption effects and 1.1 per cent with trade diversion and creation under the full-liberation negotiation framework. Assuming partial liberalization, the share changes to 0.5 percent, 0.5 percent and 0.8 percent in 2020 for the same scenarios. The effects of revenue loss become much lower if taken as proportional of country GDP (Panel D). The EPA revenue loss will account to about 0.1 percent under full-liberalization and 0.2 percent under partial liberalization assumptions.

6.3 Net Welfare Effects

At this juncture, we present and discuss the implication of EPA on Tanzania net welfare loss in Table 10. Consistent with previous analysis, we estimate the effects on net welfare effects under full liberalization and partial liberalization. While the agreement might have both beneficial and negative effects, the overall net welfare effects are not certain.

Table 10: Net Welfare Effects of EPA

Full	Partial -1	Partial-2
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			(EAC-CET)		(EAC-CET & 30+)	
	ΔW	% of GDP	ΔW	% of GDP	ΔW	% of GDP
2016	-76.57	0.15	-36.86	0.07	-37.19	0.08
2017	-62.33	0.12	-29.88	0.06	-29.96	0.06
2018	-64.86	0.11	-31.30	0.06	-31.19	0.05
2019	-58.92	0.10	-31.89	0.05	-31.63	0.05
2020	-57.62	0.09	-29.47	0.05	-29.50	0.05

Notes: All figures are in millions of USDs. Estimates in column 1 assume full liberalization with EPA. Columns 2 estimates assume partial liberation excluding the sensitive items articulated in East Africa Community Common External Tariff (CET), including arms and ammunition. In column 3, estimates exclude all EAC CET, arms and ammunition, and all products with MFN tariff above 30 percent.

Source: Authors computation based on Trade Map data.

Our estimates show that overall Tanzania is likely to lose from EPA deal in the short run under both full and partial liberalization. The estimated welfare losses are consistent with the argument by Milner *et al.* (2005) that consumers tend to gain from cheap imports (as a result of trade creation and consumption effects) but at the expense of domestic producer loss and so loss in government tax revenue. Under full liberation, Tanzania net welfare loss is equivalent to USD 57.6 million in 2020, which is equivalent to 0.09 percent of the country GDP. Excluding sensitive products from EAC-CET plus all products with currently 30 percent tariff rate and above, the net welfare loss will amount to USD 29.5 million in 2020, which is about 0.05 percent of the country's GDP. Our estimates are consistent with the studies by Milner *et al.*, (2005) and Zgovu and Kweka (2019) which concludes that Tanzania will have a net welfare loss following the EPA agreement but contradict with the study by Karingi *et al.*, (2005) which document positive welfare gains.

7. Summary and Implications

Tanzania is in a crossroad, either to sign or not to sign the European Union (EU) – East African Community (EAC) economic partnership agreement deal. The signing of the long-awaited economic partnership agreement between EU and EAC regional bloc has been off the agenda for a long time now. Of the six Partner States of EAC, Tanzania has long been perceived as the stumbling block for signing, ratifying and implementing regional and continental trade and investment agreements. Thus, fear of potential losses and uncertain benefits continue to delay the signing, ratification and implementation of trade and investment agreements in many countries, including Tanzania, hampering meaningful regional and global integration.

Thus, trying to understand the merits of extremely complex agreements like EPA for a lower-middle-income country like Tanzania is hard. Applying a suitably calibrated and empirically tested partial equilibrium framework, we examine the trade, revenue, and welfare effects of Tanzania signing, ratifying, and implementing the EU-EAC EPA deal. Unlike previous studies that have looked on the same issue for the case of Tanzania (see for example Milner et al. 2005; Karingi, 2005; Mkenda and Hangi, 2009; Zgovu and Kweka, 2019), we add to this empirical work on the effects of EPA in two fronts. One, we estimated the effects of EPA under imperfect source substitutability framework. Two, we simulate the effects under two different scenarios: full liberalization and partial liberalization. The findings of this study are therefore expected to provide prima facie evidence to help inform Tanzanian's policy makers in the EU-EAC EPAs negotiation interests.

While most of our analysis are performed at 6 digits HS code, the presented trade statistics are averages in yearly basis over the period from 2001 to 2020. From the summary statistics, as shown, on average, Tanzania exports more to EAC markets than it imports. The case is different when looking at trade with either EU or the RoW, as Tanzania significantly export less than what it imports from these two blocks. Overall, the total trade of Tanzania with EAC, on average, accounted about 45 percent of total trade with

EU and is much less with RoW at about 7.9 percent and further much lower when combining EU and RoW - less than 6.7 percent of total trade. While the share of Tanzania exports in EAC markets has more than doubled, the story is opposite coming to import, as the share of imports has dropped more than twice during this period.

It is also important to get a feeling of trade patterns and trends in retrospective (1961 – 1980) to get to know changes over time of Tanzania's trade destination and traded products. The destination major exports destinations during 1960s to 1980s) has been with the EEC (40% to 50% of total exports), of which the UK accounted the largest share of market destination (20% to 28% of total exports); implying that Tanzania exports markets were highly concentrated on EEC and UK markets. The main exports have been traditional or primary products that accounted up to 70 percent of total exports (such as coffee, tea, cotton, sisal, cashew-nuts, tobacco, cloves, hide and skins and oil seeds and nuts). When coming to imports, as it has been for the case of exports during this period, the major source of Tanzania imports has been EEC (40% to 50 % of total imports) with UK being a single country with largest share (20% to 30% of total imports). Major imported goods were machinery and transport equipment (25% to 35%) followed by manufactured goods (20% to 38%) of total imports. Even though, over time, there have been a substantial change, especially from 1990s and 2000s onwards for export market destinations as well as for import market sources, so is the diversification of what is exported to and imported from these new and emerging markets. The emerging markets during this period that accounted for the largest share now include but not limited to India, South Africa, Kenya, China, Switzerland, Germany, Netherlands, Belgium, UAE, Japan, Uganda, DRC, USA, Zambia, and Vietnam.

Focusing mainly on the products for which EU is the dominant supplier, the results suggest that the EPA deal will increase the imports from EU markets by 4% under full and 3 % under partial liberalization (the effects more than double when we allow for all

products). However, the partial equilibrium analysis shows that, this happens at the expense of short run adjustment costs in term of revenue and welfare loss. The revenue loss as a percentage of the total import duty revenue under full liberation (allowing for current imports, consumption and trade creation and diversion effects) is expected to be 23 % in 2020; which is equivalent to 2% of the total revenue, to 1% of total government budget and to 0.1 % as a proportion to GDP. Though small in magnitude, in short run it is suggested that Tanzania will face welfare losses as consumers tend to gain from cheap imports (as a results of trade creation and consumption effects) but at the expense of domestic producer loss and so loss in government tax revenue. As under full liberalization, the net welfare loss in 2020 is equivalent to 0.09 % of the country's GDP. And the revenue loss effects will be higher for foodstuffs, machinery, and electrical, textiles, transportation and vegetable products. Excluding sensitive products, the effects decline significantly for foodstuff and textiles sectors as these are the two sectors with the higher number of sensitive products.

Clearly, against what was perceived, the effects of signing and ratifying EU-EAC EPA deal for Tanzania are largely moderate and it is for certain products, as alluded in detail already. Some of the possible policy implications to counter revenue loss estimates during this short run period of signing the deal could: one, integrate the loss into the EPA negotiations; two, partial liberalization to allow for dynamic adjustment to the revenue loss and three, expand the tax base to shield the revenue loss.

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Appendix

Table A1: Tanzania Trade Flow: 2001-2020

Year	Exports Value and Share						Import Value and Share					
	EAC		EU		ROW		EAC		EU		RoW	
	X	%	X	%	X	%	M	%	M	%	M	%
2001	52.03	6.77	438.48	57.07	277.79	36.16	107.55	6.22	388.61	22.48	1232.74	71.30
2002	52.28	5.80	480.57	53.32	368.50	40.88	98.98	5.85	376.51	22.26	1215.69	71.88
2003	94.81	8.38	654.65	57.83	382.54	33.79	126.56	5.85	443.90	20.51	1593.87	73.64
2004	167.17	11.35	669.03	45.42	636.90	43.24	139.32	5.45	484.01	18.93	1933.14	75.62
2005	161.99	9.69	425	25.42	1084.78	64.89	181.09	5.58	625.39	19.26	2440.36	75.16
2006	192.19	10.31	396.00	21.24	1276.50	68.46	223.39	4.93	776.99	17.16	3526.34	77.90
2007	258.02	12.06	421.26	19.69	1460.05	68.25	110.09	1.86	1046.33	17.68	4762.61	80.46
2008	355.70	11.40	537.59	17.22	2227.78	71.38	448.40	5.54	1332.30	16.47	6307.03	77.98
2009	284.97	9.56	494.14	16.57	2203.28	73.88	316.91	4.85	1250.09	19.14	4963.82	76.01
2010	558.02	13.78	506.99	12.52	2985.53	73.71	295.19	3.68	1160.10	14.48	6557.57	81.84
2011	408.91	8.64	573.01	12.10	3753.02	79.26	378.11	3.38	1571.15	14.05	9234.97	82.57
2012	613.28	11.06	766.17	13.81	4167.79	75.13	678.57	5.79	1450.41	12.38	9586.61	81.83
2013	421.61	9.55	508.95	11.53	3481.98	78.91	397.00	3.17	1243.05	9.92	10885.37	86.91
2014	598.14	10.49	638.23	11.19	4468.28	78.33	706.43	5.57	1318.99	10.39	10665.67	84.04
2015	924.91	15.80	620.19	10.59	4309.11	73.61	278.70	1.90	1001.11	6.81	13426.15	91.30
2016	282.95	6.43	628.27	14.28	3488.58	79.29	309.20	4.02	976.00	12.69	6403.39	83.28
2017	358.29	8.75	533.14	13.02	3202.84	78.23	274.41	3.56	1041.44	13.51	6394.38	82.93
2018	500.92	13.19	510.98	13.46	2785.50	73.35	302.60	3.55	1030.89	12.11	7180.53	84.34
2019	663.84	13.46	411.35	8.34	3857.51	78.20	328.32	3.62	1051.45	11.58	7697.33	84.80
2020	798.17	13.34	612.88	10.24	4573.77	76.42	322.84	3.81	1142.07	13.47	7012.75	82.72

Notes. EAC-East Africa Community, EU-European Union, RoW-Rest of World. m-imports, m%-import share, x-export, x%-export share

Table A2: Tanzania Export value and share to top 6 EU Market

Year	UK		Belgium		France		Germany		Italy		Netherlands	
	Val.	%	Val.	%	Val.	%	Val.	%	Val.	%	Val.	%
2001	140469	32.03	10573	2.41	138514	31.59	38283	8.73	7821	1.78	51722	11.80
2002	159254	33.14	21459	4.47	156175	32.50	27890	5.80	24709	5.14	54533	11.35
2003	391499	59.80	35498	5.42	80272	12.26	31228	4.77	23593	3.60	68353	10.44
2004	471932	70.54	27236	4.07	12417	1.86	34623	5.18	28371	4.24	60804	9.09
2005	132119	31.09	36785	8.65	8339	1.96	77886	18.33	40399	9.51	100009	23.53
2006	70052	17.69	29078	7.34	11920	3.01	112784	28.48	35096	8.86	104114	26.29
2007	29546	7.01	39561	9.39	12596	2.99	100670	23.90	57094	13.55	104255	24.75
2008	83881	15.60	50360	9.37	27018	5.03	67136	12.49	67593	12.57	163215	30.36
2009	32826	6.64	81511	16.49	18011	3.64	57869	11.71	55022	11.13	182366	36.90
2010	34291	6.76	95847	18.90	14505	2.86	139263	27.47	67846	13.38	93348	18.41
2011	30279	5.28	84674	14.78	17794	3.11	229310	40.02	52507	9.16	94851	16.55
2012	47384	6.18	152715	19.93	20738	2.71	292443	38.17	50696	6.62	120954	15.79
2013	55448	10.89	87569	17.20	14370	2.82	160663	31.57	57451	11.29	62751	12.33

2014	46622	7.30	98859	15.49	25904	4.06	221942	34.77	52530	8.23	50927	7.98
2015	23041	3.71	149206	24.06	16870	2.72	225709	36.39	35968	5.80	76525	12.34
2016	21821	3.47	282935	45.03	24947	3.97	114700	18.25	42483	6.76	63092	10.04
2017	20731	3.89	196111	36.78	15251	2.86	49534	9.29	36439	6.83	74937	14.05
2018	22259	4.36	240738	47.10	21700	4.25	40721	7.97	27935	5.47	80138	15.68
2019	15372	3.74	184280	44.79	14273	3.47	41507	10.09	20115	4.89	77952	18.95
2020	14510	2.37	122808	20.04	22355	3.65	50333	8.21	21739	3.55	63574	10.37

Notes. Val. denotes export values in USD Millions and % as export share in percent.

Table A3: Tanzania Import value and share to top 6 EU Market

Year	UK		Belgium		France		Germany		Italy		Netherlands	
	Val.	%	Val.	%	Val.	%	Val.	%	Val.	%	Val.	%
2001	110120	28.33	22014	5.66	41541	10.69	68047	17.51	50915	13.10	30862	7.94
2002	95944	25.47	23431	6.22	39403	10.46	60659	16.10	45450	12.07	27674	7.35
2003	108194	24.37	33816	7.62	41246	9.29	69238	15.59	39748	8.95	32178	7.25
2004	111666	23.07	35789	7.39	40886	8.45	76367	15.78	40908	8.45	43532	8.99
2005	124423	19.89	48813	7.80	72393	11.57	89520	14.31	41525	6.64	68895	11.01
2006	158922	20.45	76958	9.90	56895	7.32	152925	19.68	92156	11.86	86011	11.07
2007	173654	16.59	109878	10.50	131925	12.61	156189	14.93	83192	7.95	85611	8.18
2008	175574	13.18	142547	10.70	162066	12.16	220670	16.56	95606	7.18	212953	15.98
2009	183199	14.65	109736	8.78	112238	8.98	226828	18.14	99638	7.97	123340	9.87
2010	207885	17.92	132278	11.40	128991	11.12	183817	15.84	96399	8.31	143862	12.40
2011	291315	18.54	179114	11.40	163600	10.41	182514	11.62	140496	8.94	282858	18.00
2012	367982	25.37	221643	15.28	108912	7.51	187469	12.92	117187	8.08	159328	10.98
2013	277400	22.31	146264	11.76	103665	8.34	179469	14.44	83238	6.70	137164	11.03
2014	262969	19.93	126983	9.63	72551	5.50	248136	18.81	79658	6.04	176504	13.38
2015	181094	18.08	63584	6.35	95471	9.53	160399	16.02	79048	7.89	94945	9.48
2016	151087	15.48	67396	6.90	64356	6.59	196163	20.10	86269	8.84	103596	10.61
2017	159804	15.34	64725	6.21	66949	6.43	230294	22.11	89753	8.62	84292	8.09
2018	169678	16.46	64152	6.22	102882	9.98	220195	21.36	96103	9.32	85181	8.26
2019	140151	13.33	59573	5.66	85826	8.16	230347	21.90	115358	10.97	84595	8.04
2020	117764	10.31	61393	5.37	80615	7.06	238343	20.87	176387	15.44	133670	11.70

Table A4: Tariff Rates and Elasticities Data

HS Code	Description	Tariff Rates (%)		Elasticity
		TRANS	WTO-IDB	
01	Live animal	16.16	16.16	0.40
02	Meat and edible meat offal	35	35	1.20
03	Fish and crustacea	25	25	1.10
04	Dairy products and eggs	39.89	39.89	1.10
05	Products of animal origin	22.07	22.07	0.90
06	Live trees and other plants	16.56	16.56	1.00
07	Edible vegetables and cereals	27.57	27.20	0.60
08	Edible fruit and nuts	26.74	26.74	0.60
09	Coffee, tea, and mate	26.02	27.04	1.00
10	Cereals	25.37	15.55	0.40
11	Products of milling industries	25.09	25.09	1.10
12	Oilseeds and fruits	8.29	8.29	0.40
13	Gums and resins	0	0	0.70
14	Vegetable plaiting materials	9.24	9.24	0.40
15	Animal and vegetable oils	20.71	20.71	1.10
16	Preparations of meat and fish	27.15	27.15	1.20
17	Sugars and sugar confection	42.50	20.90	1.20
18	Cocoa and cocoa preparations	10.10	10.10	1.20
19	Preparations of cereals and flour	25.81	25.81	1.10
20	Preparations of vegetables and fruits	25	25	1.10
21	Miscellaneous edible preparations	22.15	22.15	1.10
22	Beverages and spirits	24.67	26.61	1.20
23	Residue and waste from food preparations	9.55	9.55	0.70
24	Tobacco and manufactures	28.33	28.33	1.20
25	Salt, sulfur, etc.	5.67	5.67	1.20
26	Ores, slag and ash	0	0	0.40
27	Mineral fuels	6.41	6.41	1.70
28	Inorganic chemicals	0.76	0.76	1.70
29	Organic chemicals	0	0	1.70
30	Pharmaceutical products	0.46	0.46	1.70
31	Fertilizers	0	0	1.70
32	Tanning and dyeing extracts	8.84	8.84	1.40
33	Essential oils and resinoids	18.57	18.57	1.70
34	Soaps and cleaners	14.64	14.64	1.70
35	Albuminoidal substances	11.88	11.88	1.40
36	Explosives and pyrotechnics	18.04	18.93	1.70
37	Photographic products	9.61	9.61	1.70
38	Miscellaneous chemical products	3.52	3.52	1.50
39	Plastics and articles	9.69	9.75	1.60
40	Rubber and articles	7.22	7.22	1.60
41	Raw hides and skins	10.57	10.57	0.70
42	Articles of leather	24.69	24.69	2.00
43	Furskins and artificial furs	13.55	13.55	1.30
44	Wood and articles of wood	17.10	17.10	1.40
45	Cork and articles of cork	5.80	5.80	1.20

46	Manufactures of straw	25	25	0.90
47	Pulp of wood/or other fibres	0	0	1.30
48	Paper and paperboard	14.02	14.02	1.40
49	Printed books, newspapers	7.34	7.34	1.40
50	Silk	12.20	12.20	1.30
51	Wool and animal hair	11.58	11.58	1.30
52	Cotton	16.11	16.11	1.30
53	Other vegetable textile fibres	11.14	11.14	1.10

Table A4 (continued)

HS Code	Description	Tariff Rates (%)		Elasticity
		TRANS	WTO-IDB	
54	Man-made filaments	16.08	16.08	1.50
55	Man-made STAPLE Fibres	12.66	12.66	1.50
56	Wadding of felt and other materials	17.90	17.90	1.50
57	Carpets and other textiles	25	25	1.00
58	Special woven fabrics	25	25	1.30
59	Impregnated or coated fabrics	16.86	16.86	1.30
60	Knitted or crocheted fabrics	25	25	1.30
61	Apparel and clothing	25	25	2.50
62	Articles of apparel and clothing	25.37	25.37	2.50
63	Other made-up textile articles	23.71	23.87	2.00
64	Footwear	22.50	22.50	2.50
65	Headgear and parts thereof	15.60	15.60	2.00
66	Umbrellas, walking sticks	20	20	1.50
67	Preparation of feathers and down	25	25	1.50
68	Art of stone and plaster	22.74	22.74	1.60
69	Ceramic products	20.58	21.01	2.30
70	Glass and glassware	13.12	13.12	2.30
71	Natural and cultured pearls	23.01	23.01	2.30
72	Iron and steel	9.08	4.51	2.00
73	Articles of iron or steel	15.53	14.31	2.30
74	Copper and articles thereof	11.69	11.69	2.00
75	Nickel and articles thereof	13.43	13.43	2.00
76	Aluminum and articles thereof	15.73	15.73	2.00
78	Zinc and articles thereof	4.04	4.04	2.00
79	Tin and articles thereof	4.96	4.96	2.00
80	Other base metals and ceramics	4.97	4.97	2.00
81	Tool and cutlery	0	0	2.50
82	Miscellaneous articles of metal	10.87	10.87	2.30
83	Nuclear reactors and boilers	18.21	18.21	2.00
84	Mechanical appliances/machinery	2.81	2.79	3.30
85	Electrical machinery: equipment	11.88	11.88	3.30
86	Railway locomotives and stock	0	0	2.30
87	Vehicles other than railway	10.25	10.25	2.30
88	Aircraft	0	0	3.00
89	Ships and boats	3.31	3.31	2.50
90	Optical and photo equipment	3.06	3.06	2.50

91	Clocks and watches	25	25	1.80
92	Musical instruments	9.41	9.41	2.00
93	Arms and ammunition	25	25	0.80
94	Furniture and bedding material	20.38	20.38	1.40
95	Toys, games, and sporting equipment	25.58	25.58	1.50
96	Miscellaneous manufacturers	22.55	22.55	1.30
97	Works of art and collectors	25	25	1.00

Notes: All tariff rates are extracted from the WITS database. Elasticities are from Milner et al. 2005.

Table A5: Sensitive Items and Tariff Rate

HS Code	Description	EAC CET	CET Item	Reported Tariff Rate	
				TRANS	WTO
0201	Meat and edible meat offal		.	35	35
0202	Meat and edible meat offal		.	35	35
0203	Meat and edible meat offal		.	35	35
0204	Meat and edible meat offal		.	35	35
0205	Meat and edible meat offal		.	35	35
0206	Meat and edible meat offal		.	35	35
0207	Meat and edible meat offal		.	35	35
0208	Meat and edible meat offal		.	35	35
0210	Meat and edible meat offal		.	35	35
0401	Dairy products and eggs	60%	√	60	60
0402	Dairy products and eggs	60%	√	60	60
0403	Dairy products and eggs	60%	√	60	60
0406	Dairy products and eggs	60%	√	60	60
0603	Live trees and other plants		.	32.14	32.14
0604	Live trees and other plants		.	35	35
0702	Edible vegetables and cereals		.	35	35
0703	Edible vegetables and cereals		.	31.67	31.67
0804	Edible fruit and nuts		.	31	31
0807	Edible fruit and nuts		.	31.67	31.67
0901	Coffee, tea, and mate		.	35	35
1001	Cereals	35%	√	14	14
1005	Cereals	50%	√	37.50	37.50
1006	Cereals	75% or \$345/MT	√	75	1.83
1101	Products of milling industries	50%	√	50	50
1102	Products of milling industries	50%	√	37.50	37.50
1510	Animal and vegetable oils		.	35	35

1515	Animal and vegetable oils		.	30.71	30.71
1601	Preparations of meat and fish		.	35	35
1701	Sugars and sugar confection	100% or \$ 460/MT	√	100	13.60
1704	Sugars and sugar confection		.	35	35
1806	Cocoa and cocoa preparations		.	35	35
1905	Preparations of cereals and flour		.	35	35
2402	Tobacco and manufactures	35%	√	30	30
2403	Tobacco and manufactures	35%	√	30	30
5208	Cotton	50%	√	27.38	27.38
5209	Cotton	50%	√	26.47	26.47
5210	Cotton	50%	√	27.08	27.08
5211	Cotton	50%	√	26.67	26.67
5212	Cotton	50%	√	29.17	29.17
5513	Man-made STAPLE Fibres	50%	√	27.08	27.08
5514	Man-made STAPLE Fibres	50%	√	26.92	26.92
6211	Articles of apparel and clothing	50%	√	31.25	31.25
6302	Other made-up textile articles	50%	√	31.67	31.67
6309	Other made-up textile articles	35% or USD 0.40/kg	√	35	35
8506	Electrical machinery: equipment	35%	√	30	30
9301	Arms and ammunition			25	25

Notes. EAC CET is the East Africa Community Common External tariff; the CET item column indicates the sensitive items in the CET protocol of 2017. Other items include products with a reported MFN tariff rate above 30 percent.

Table A6: Product for which EU supplies for at least 20 percent

HS	HS CODE DESCRIPTION	EAC		EU		RoW		TOTAL		# of HS	Hs code 4
		M	%	M	%	M	%	M	%		
11	Products of the milling industry	0.38	2.13	16.89	94.59	0.59	3.29	17.86	100	1	1107
12	Oil seeds and oleaginous fruits	0.56	17.51	1.13	35.63	1.49	46.86	3.18	100	1	1209
19	Preparations of cereals flour starch	0.31	8.14	2.31	61.39	1.14	30.48	3.76	100	1	1901
21	Miscellaneous edible preparations	0.63	5.3	6.35	53.31	4.93	41.39	11.92	100	1	2106
22	Beverages spirits and vinegar	0.44	5.98	4.56	61.53	2.36	32.49	7.36	100	3	2203 2208 2202
23	Residues and waste from the	0.35	9.97	1.6	45.59	1.56	44.43	3.51	100	1	2309
24	Tobacco and manufactured tobacco substitutes	2.6	40.9	1.52	23.97	2.23	35.12	6.35	100	1	2401
29	Organic chemicals	0.03	0.16	7.9	43.14	10.38	56.69	18.32	100	1	2929
30	Pharmaceutical products	0.41	2.97	9.01	49.44	8.52	47.59	17.94	100	3	3002 3006 3003
31	Fertilizers	1.27	2.36	20.61	38.38	31.84	59.27	53.72	100	1	3105
32	Tanning or dyeing extracts tannins	0.06	0.99	1.36	20.89	5.09	78.12	6.51	100	1	3206
33	Essential oils and resinoids perfumery	0.04	0.17	8.72	50.42	14.43	49.41	23.19	100	2	3302 3301
38	Miscellaneous chemical products	0.11	0.89	7.61	51.67	8.26	47.44	15.99	100	2	3822 3811
39	Plastics and articles thereof	0.19	1.37	6.77	31.43	20.4	67.2	27.36	100	2	3912 3907
40	Rubber and articles thereof	0.04	0.8	1.44	29.05	3.49	70.15	4.97	100	4	4014 4010 4009 4016
48	Paper and paperboard articles of	0.63	6.34	2.64	40.73	4.55	52.93	7.83	100	6	4811 4810 4801 4819 4813 4804
49	Printed books newspapers pictures and	0.87	11.78	2.23	41.43	2.88	46.79	5.98	100	2	4907 4911
69	Ceramic products	0.03	0.62	1.62	35.41	2.98	63.97	4.63	100	2	6902 6907
73	Articles of iron or steel	0.21	3.04	4.03	30.37	8.37	66.59	12.61	100	5	7309 7315 7307 7326 7302
82	Tools implements cutlery spoons and	0.2	2.2	2.84	30.61	5.31	67.19	8.35	100	2	8207 8205
84	Machinery mechanical appliances nuclear reactors	0.43	1.66	6.17	38.91	11.65	59.43	18.25	100	33	***
85	Electrical machinery and equipment and	0.29	1.17	7.78	37.5	14.85	61.33	22.92	100	14	**
87	Vehicles other than railway or	0.94	1.75	16.35	38.39	21.28	59.86	38.57	100	4	8701 8709 8705 8708
88	Aircraft spacecraft and parts thereof	1.52	6.47	9.69	38.95	14.21	54.59	25.42	100	2	8802 8803
89	Ships boats and floating structures	4.57	37.22	2.69	21.95	5.01	40.83	12.27	100	1	8901
90	Optical photographic cinematographic.	0.26	1.86	4.44	34.71	7.22	63.43	11.91	100	6	*

*** include the following hs code 4: 8422 8427 8412 8443 8409 8480 8477 8410 8482 8471 8428 8413 8441 8430 8484 8438 8472 8479 8478 8429 8421 8408 8473 8481 8426 8414 8483 8411 8402 8431 8470 8475 8419

** include the following hs code 4: 8526 8529 8538 8542 8530 8535 8501 8502 8517 8503 8504 8537 8536 8525

* include the following hs code 4: 9031 9018 9015 9022 9027 9026

Notes: All values are in millions USD. The calculation is based on average import per year from 2001 to 2020. All calculation is performed at hs code 4 and aggregated to hs code 2 for simple presentation. Only products with an average of 1000 million USD and above is included in the analysis. **EAC**-East Africa Community, **EU**-European Union, **RoW**-Rest of World. **m**-imports and **%**-import share.

Table A7: Products for which EU is a Dominant supplier

HS 2	HS CODE DESCRIPTION	EAC		EU		ROW		TOTAL		# of HS	Hs code 4
		M	%	M	%	M	%	M	%		
11	Products of the milling industry	0.38	2.13	16.89	94.59	0.59	3.29	17.86	100	1	1107
19	Preparations of cereals flour starch	0.31	8.14	2.31	61.39	1.14	30.48	3.76	100	1	1901
21	Miscellaneous edible preparations	0.63	5.30	6.35	53.31	4.93	41.39	11.92	100	1	2106
22	Beverages spirits and vinegar	0.44	5.98	4.56	61.53	2.36	32.49	7.36	100	3	*
23	Residues and waste from the	0.35	9.97	1.60	45.59	1.56	44.43	3.51	100	1	2309
30	Pharmaceutical products	0.15	1.02	11.44	58.88	8.56	40.10	20.15	100	2	3006 3002
33	Essential oils and resinoids perfumery	0.01	0.18	2.14	65.33	1.13	34.49	3.28	100	1	3301
38	Miscellaneous chemical products	0.09	1.23	4.22	58.98	2.85	39.79	7.15	100	1	3811
48	Paper and paperboard articles of	0.00	0.23	1.63	90.19	0.17	9.58	1.81	100	1	4813
49	Printed books newspapers pictures and	0.07	1.64	2.50	56.86	1.82	41.49	4.39	100	1	4907
84	Machinery mechanical appliances nuclear reactors	0.09	0.82	4.81	65.81	3.15	33.37	8.04	100	7	***
85	Electrical machinery and equipment and	0.04	0.86	5.85	61.76	3.71	37.39	9.60	100	4	**
87	Vehicles other than railway or	3.19	3.16	50.07	49.49	47.90	47.35	101.16	100	1	8701

*** includes the following hs code 4: 8410 8470 8438 8409 8475 8422 8478

** includes 8526 8503 8529 8530

* includes 2208 2202 2203

Notes: Import from EU Exceed that of the ROW, and the imports exceed 1million USD per year==DOMINANCE. All values are in millions USD. The calculation is based on average import per year from 2001 to 2020. All calculation is performed at hs code 4 and aggregated to hs code 2 for simple presentation. Only products with average of 1000 million USD and above is included in the analysis. **EAC**-East Africa Community, **EU**-European Union, **RoW**-Rest of World. **M**-imports and **%**-import share.