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Impact of a Single Customs Territory in the East African Community on Tanzania's exports

Anne Kamau and Maureen Odongo*

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This publication results from Sustainable development solutions for Tanzania – strengthening research to achieve SDGs, a collaborative project between the UONGOZI Institute in Dar es Salaam, Tanzania, and UNU-WIDER in Helsinki, Finland, with a main research objective of informing the development and implementation of policies aiming for economic transformation and sustainable development in Tanzania and the East African region. With financial support provided by the Ministry for Foreign Affairs of Finland, the joint project launched in 2018 with key questions giving the partners a framework for collaboration and the research work to be undertaken. The project focuses on macroeconomic perspectives, domestic resource mobilization, extractives, industrialization, sustainable livelihoods, and gender as a cross-cutting issue. The project provides local stakeholders a platform for research and policy discussions on Tanzania and bridges these discussions to the regional and international development debate.

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Abstract: The implementation of a Single Customs Territory by East African Community countries is intended to ease the movement of goods across borders by cutting costs and time through harmonization and simplification of customs documents, removal of burdensome customs procedures, and automation of customs systems. Using descriptive statistics and an econometrics estimation method, this study examines the impact of a Single Customs Territory on Tanzania's exports from 2004 to 2018. The key findings reveal that Tanzania's merchandise exports to East African Community countries have remained low under the Single Customs Territory. Challenges persist as trade costs remain high and it takes a significant amount of time to export goods. Policy proposals include relaxation of border costs and time required, expeditious harmonization of customs systems and documentation, investment in cargo-related infrastructure, value addition of exports, and ratification of agreements.

Key words: Single Customs Territory, trade costs, East African Community

JEL classification: F13, F14, F15

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1 Introduction

Trade facilitation is widely recognized as an essential factor in enhancing competitiveness as it allows for the timely flow of goods and services at low transaction costs, thereby increasing trade flow and gross domestic product (GDP) (World Bank 2019a; WTO 2015).[1] It is for this reason that the international community and regional economic blocs have made significant progress in dismantling barriers to trade by reducing tariff and non-tariff barriers which hinder movement of goods across borders. In the East African Community (EAC) region, implementation of the Single Customs Territory (SCT) aims to facilitate the flow of goods in order to enhance intra-EAC trade.

The removal of burdensome customs procedures, harmonization and simplification of customs documents, and automation of customs information has been observed to have the greatest impact on reducing trade costs by between 10–18 per cent and increasing trade flows across borders (OECD 2018). The largest gains are expected to accrue to low income countries since these measures are aimed at facilitating trade in perishable agricultural goods and intermediate manufactured goods, which feature prominently in global value chains where lead-time and predictability in delivery time are critical (OECD 2018; World Bank 2019a; WTO 2015). Despite progress made in implementing trade facilitation agreements, most countries in sub-Saharan Africa (SSA) lag behind, as the cross-border flow of goods is hampered by trading costs and time related to border and document compliance, which are relatively high compared to other countries in the world.

The World Bank (2020b) Doing Business Report revealed that, on average, SSA is ranked 140 out of 190 in the ease of trading across borders indicator. According to the report, the SSA average border compliance time for exports is 97.1 hours (four days) compared to 12.7 hours (half a day) in OECD countries, while the border compliance cost is US$603.1 compared to the OECD average cost of US$136.8. Burdensome procedures have also added to the cost of trading in SSA, with document compliance taking 71.9 hours (three days) to clear and costing US$172.5 compared to 2.3 hours and US$33.4 in OECD countries.

At the regional level, the EAC countries, whose members include Burundi, Kenya, Rwanda, South Sudan, Tanzania, and Uganda, launched the SCT in 2013.[2] The initiative was aimed at facilitating trade across EAC countries by harmonizing and simplifying internal regulatory procedures and streamlining border documentation to ensure the timely release of goods across borders. In addition, modernization of customs programmes was aimed at reducing costs and the number of documents required for clearance across borders (EAC 2014).

Following this initiative, notable progress has been recorded across EAC countries, with the export time dropping from an average of 28 days in 2013 to about three days in 2019 (World Bank 2013, 2020b). However, implementation of the SCT has been uneven across EAC countries and significant challenges remain, in particular in relation to coordination between domestic and cross-border agencies and the timely release of goods across the border. Comparison across countries reveals that the border compliance time for clearance of export goods is on average four days for

[1] Trade facilitation is defined as the 'simplification and harmonization of international trade procedures', including the 'activities, practices, and formalities involved in collecting, presenting, communicating, and processing data and other information required for the movement of goods in international trade' (WTO 1998 as cited in Grainger 2012: 17).

[2] EAC Partner States include Burundi, Rwanda, Kenya, South Sudan, Tanzania, and Uganda. South Sudan joined the EAC in 2016 and therefore has been excluded from the study.

Tanzania, three and a half days for Rwanda, two and a half days for Burundi, and 16 hours for Kenya (World Bank 2020b). Costs related to border compliance and documentation also vary, with the country with the highest border compliance cost being Tanzania at US$1,175, above the SSA average of US$603, and the lowest being Burundi at US$109. Whereas trade facilitation measures under the SCT are intended to ease the movement of goods across borders by cutting trade costs and time, and harmonizing and simplifying trade procedures, this has not been the case in all the EAC countries. The high cost of exporting across borders may discourage small exporters who may not be well versed with complicated cross-border trade procedures. In addition, long transaction times may affect the export of perishable and time-sensitive goods, thereby affecting export competitiveness. Against this background, this study aims to analyse the impact of SCT in the EAC on Tanzania's exports. Specifically, the study will:

(1) analyse intra- and inter-EAC trade by country and product classification;

(2) assess the impact of the SCT in the EAC on Tanzania's exports;

(3) identify the challenges and opportunities facing exporters under the SCT regime.

The EAC-SCT is expected to enhance trade in locally produced goods and boost trade and investment flows in the region (EAC 2014). Making progress on the trade facilitation agenda therefore seems crucial for improving the region's competitiveness and enhancing participation in international production networks. Given that the EAC region combines a market force of six countries (including South Sudan) with an estimated population of 172 million and GDP of US$180 billion, it provides a wider base for promoting not only domestic trade but also regional trade and investment. Therefore, an understanding of the impact of SCT in the region is important as this will provide the necessary information for policy makers to assess the status of trade and investment, examine the challenges, and address the proposed policy recommendations.

The remaining sections are organized as follows. Section 2 presents the EAC merchandise exports by destination and product classification, focusing on Tanzania's exports. Section 3 presents the theoretical and empirical literature backing the study on the impact of the EAC-SCT on exports. Section 4 presents the conceptual framework and the empirical methodology. Section 5 presents descriptive statistics and empirical findings. Conclusions and policy recommendations are provided in Section 6.

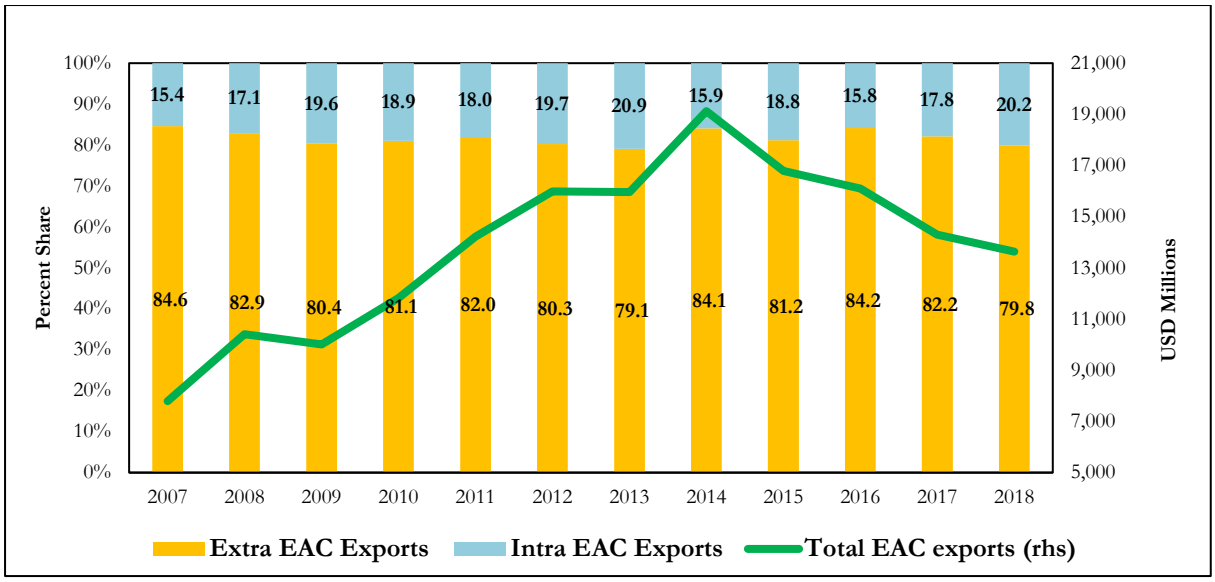
2 The EAC merchandise exports

Kenya, Uganda, and Tanzania entered into an EAC treaty that came into force in 1997. Progress on the implementation of provisions of the EAC treaty over the years has been accompanied by new membership. Burundi and Rwanda joined the EAC in 2007 and South Sudan in 2016. The EAC countries moved into a Customs Union (CU) in 2005 and adopted the Common Market Protocol (CMP) in 2010. The implementation of CU and CMP provisions significantly reduced trade barriers. However, the existence of non-tariff barriers remained key impediments to trade and contributed to high trade costs. Key among them included sanitary and phytosanitary requirements, lengthy customs procedures and documentation, non-harmonized technical regulations, rules of origin, and police roadblocks (EAC 2014; World Bank 2018; WTO 2019). This prompted EAC countries to enhance integration efforts through several trade facilitation initiatives at the national and regional levels, culminating in the full attainment of the EAC-SCT in 2014 (see Box A1 in the Appendix).

The ultimate goal of the SCT was the realization of a fully-fledged CU, which was attainable through the free circulation of goods across the EAC borders; the establishment of revenue and port management systems; instituting legal and institutional frameworks at the regional level; and harmonizing border systems and procedures to enhance efficiency in the clearance of goods and transportation of cargo, thus reducing trade costs and time (EAC 2014). Notable progress has been recorded in the region since implementation of the SCT. EAC merchandise trade has increased over the years, with total exports increasing from a low base of US$7,794 million in 2007 to a peak of US$19,125 million in 2014, and thereafter declining to US$13,631 million in 2018.[3] The sustained increase from 2007 to 2014 occurred when the EAC countries entered into a CU and at a time when SSA countries registered positive GDP growth rates. However, total EAC exports started to decline after 2014, partly attributed to lower global commodity prices and the slowdown in global growth, which affected global trade and investment.

Trade within EAC countries has grown in line with implementation of the CU and the common external tariff. Intra-EAC merchandise exports rose threefold from US$1,197 million in 2007 to US$3,344 million in 2013, with its share of total EAC exports rising from 15.4 per cent to 20.9 per cent over the same period. However, despite the adoption of SCT growth in merchandise, exports slowed down to US$2,748 million (20.2 per cent) in 2018 (Figure 1). The main goods traded within the EAC region include: agricultural products, especially sugar, maize, and vegetable and animal oils; re-exports, especially mineral fuels to landlocked countries; and chemicals and manufactured products like cement, iron and steel, plastics, and pharmaceuticals. EAC exports to other African regions have also been positive, with key export destinations being countries in the Common Market for Eastern and Southern Africa (COMESA) and the Southern African Development Community (SADC), which account for an average of 13.6 per cent and 11 per cent, respectively.

Figure 1: EAC merchandise exports, 2007–18



Source: authors' illustration based on EAC (2018).

Despite the increase in the share of intra-EAC trade, there are significant disparities in individual countries' trade performance and especially in the value of merchandise exports traded within the EAC region. Kenya remains a dominant player in the EAC region, accounting for a larger share of total intra-EAC exports. Kenya's exports are mainly to Uganda and Tanzania. However, its

[3] Intra-EAC trade data excludes South Sudan.

exports to the region have declined over the years, with its share declining to 41.7 per cent (US$1,146 million) in 2018 from 50.5 per cent (US$1,593 million) in 2012. The decline largely reflects reduced exports to Tanzania, especially after 2014. Kenya's main export commodities to Tanzania are chemicals and manufactured products like cement, petroleum products, iron and steel, salt, and medicaments (see Appendix Table A1). Uganda's intra-EAC exports grew substantially from 18.4 per cent (US$580 million) in 2012 to 32.7 per cent (US$899 million) in 2018 and this is reflected in increased exports to all the EAC countries, with Kenya being its top market destination followed by Rwanda. Uganda's main exports to Kenya include agricultural produce, especially tea, cereals, dairy produce, and animal feed, while exports to Rwanda are mainly chemicals and manufactured goods like cement, iron and steel, and agro-processed and agricultural produce. Uganda's exports to Tanzania have remained relatively low over the years, with commodities exported being electricity, iron and steel, and tobacco.

Tanzania's exports to the EAC region decreased to US$445 million (12.2 per cent) in 2018 from a peak of US$859 million (14.9 per cent) in 2015 (Bank of Tanzania, 2019). The slowdown was reflected in reduced exports to Kenya, which declined threefold to US$213 million (5.8 per cent) in 2018, from US$729 million (12.7 per cent) in 2015. Analysis of exports by product type shows that the decline was mainly in exports of crude materials, manufactured goods, and animal and vegetable oils and fats (Figure 2; Appendix Table A1). On the other hand, Tanzania's exports to Uganda and Rwanda have remained relatively low, but doubled from US$50 million and US$41 million in 2015 to US$105 million and US$79 million in 2018, respectively, with the main exports being cereals, iron and steel, petroleum fuels, and beauty products. Exports to Burundi increased marginally over the same period but have also remained low.

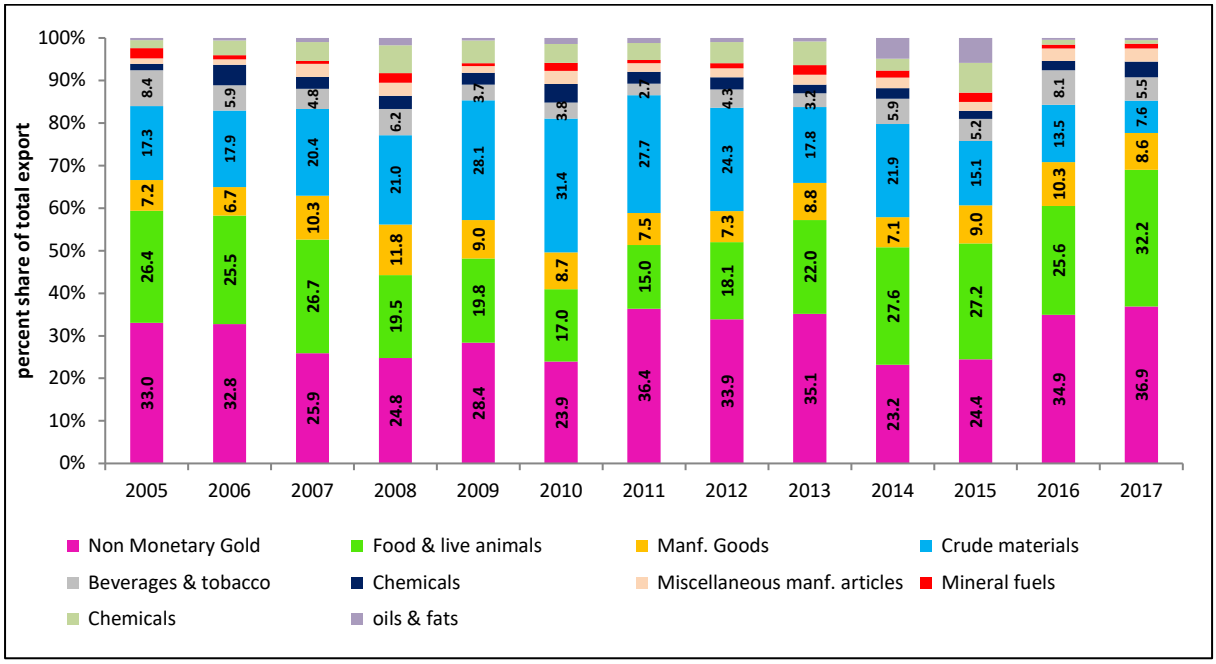
Table 1: Tanzania's merchandise exports by destination, 2012–18

	USD millions							Percentage share of total exports						
	2012	2013	2014	2015	2016	2017	2018	2012	2013	2014	2015	2016	2017	2018
Burundi	4.6	4.5	4.3	3.9	5.2	5.1	4.8	0.08	0.09	0.08	0.07	0.11	0.13	0.13
Rwanda	73.4	81.1	35.8	41.0	6.5	60.4	79.4	1.2	1.5	0.7	0.7	0.1	1.6	2.2
Uganda	65.8	66.1	73.3	50.2	58.2	24.1	105.5	1.1	1.3	1.4	0.9	1.2	0.6	2.9
Kenya	330.9	227.2	445.9	729.2	313.8	175.3	213.0	5.6	4.3	8.7	12.7	6.6	4.5	5.8
Intra EAC trade	516	419	598	859	431	311	445	8.8	8.0	11.7	14.9	9.1	8.0	12.2
Extra EAC	5,373	4,841	4,508	4,899	4,309	3,558	3,206	91.2	92.0	88.3	85.1	90.9	92.0	87.8
COMESA	695	567	862	1173	676	416	563	11.8	10.8	16.9	20.4	14.3	10.8	15.4
SADC	1430	1244	1234	1028	1013	1008	999	24.3	23.7	24.2	17.9	21.4	26.1	27.4
Rest of the world	3248	3030	2414	2698	2617	2134	1644	55.1	57.6	47.3	46.9	55.2	55.2	45.0
Total exports	5,889	5,260	5,106	5,758	4,740	3,869	3,651	100	100	100	100	100	100	100

Source: authors' illustration based on Bank of Tanzania (2019).

Tanzania's exports to the African market are concentrated in the SADC region and the EAC countries, which make up a combined share of about 40 per cent (Table 1). Since 2015, Tanzania's exports to the SADC have been increasing, with the key export market being South Africa and Democratic Republic of Congo. Analysis of Tanzania's exports by product shows a reliance on a limited export product base, primarily food (vegetables, cereals, and tea) (32.2 per cent) and non-monetary gold (37 per cent). Non-monetary gold and precious metals are exported in raw form mainly to India, Switzerland, and South Africa. EAC countries largely benefit from exports of food crops, which are largely dependent on weather and have recently been unreliable. In addition, since 2014, commodity prices in the international market have not been favourable.

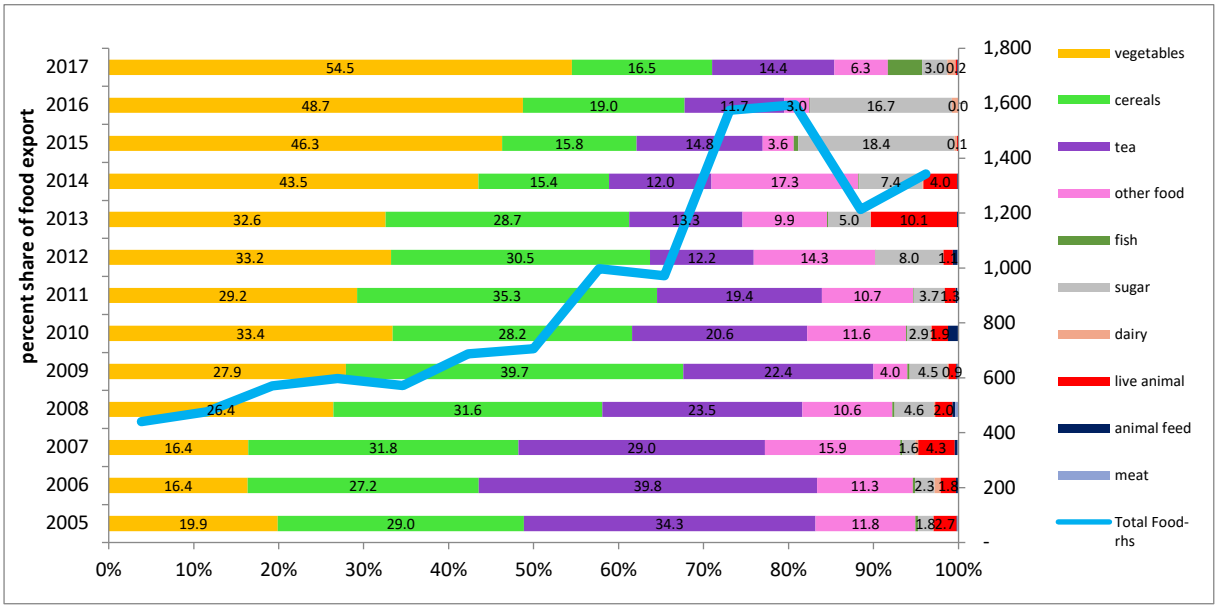
Figure 2: Tanzania's merchandise exports by product, 2007–17



Source: authors' illustration based on World Integrated Trade Statistics Database (WITS 2020).

Exports of crude materials, mainly consisting of metal ores, oil seeds, and textile fibre, declined from 31.4 per cent in 2010 to 7.6 in 2017 as a result of lower global commodity prices. The main export destinations for metal ores are China, Japan, Germany, and Switzerland. Textile fibre is exported to Asia (India, Indonesia, China, Vietnam, and Thailand) and oil seeds are mainly exported to China and Japan. Within the EAC countries, key export commodities include cereals, animal and vegetable oil, chemicals, and manufactured goods like cement, paper, and paperboard. However, cereal exports to the key market destinations have slowed down since 2014 from 35.3 per cent in 2011 to 16.5 per cent in 2017 (Figure 3). Maize is the main cereal exported to the EAC region, with Kenya being the top importer followed by Rwanda and Uganda, with peak periods reflecting low production following drought in the region.

Figure 3: Tanzania's merchandise exports by product, 2007–17



Source: authors' illustration based on World Integrated Trade Statistics Database (WITS 2020).

3 Literature review

Renowned early trade theories explain why trade exists between two different countries but without explicitly incorporating the costs of trade. Ricardo (1817) described inter-industry trade as resulting from differences in relative productivity advantages, whereas Heckscher (1949) and Ohlin (1934) explained the existence of inter-industry trade as resulting from factor endowment to production. More recent trade theories incorporate trade costs in explaining why intra-industry trade exists. According to Krugman (1980), trade in two similar countries will take place as a result of the demand for products by consumers in those countries and the scale of production, which ought to be increasing.

Melitz (2003) expounded the existence of differences in the productivity of industries, with some being able to cover the fixed costs associated with exports, whereas Yi (2010) focused on production value chains, indicating that trade costs increase along the chain of supply. The analogy of trade costs has been elaborated through a simple partial equilibrium 'iceberg model' which shows that inefficiencies such as customs procedures increase trade costs, which in turn increase prices to consumers of imported goods and producers of the goods for export. Both the exporter and importer experience a loss referred to as 'dead weight'. Therefore, any attempt to facilitate trade through measures that lead to reduced trade costs is beneficial to the countries exporting and importing and improves the terms of trade and the welfare of the people of the trading partners.

The impact of trade facilitation on trade movements has been widely analysed in the trade literature. Empirical literature suggests, in most cases, a positive impact of increased trade flows resulting from improved trade facilitation regardless of the measure used for trade facilitation (Darku 2009; Felipe and Kumar 2010; Fuenzalida-O'Shee et al. 2018; Mahona and Mjema 2014; Oparanya et al. 2019; Perez and Wilson 2010; Shinyekwa and Othieno 2013; Spence and Karingi 2011). In these studies, extended versions of gravity models are used for analysing various impacts and outcomes of trade facilitation on trade movements in emerging markets, intra-country trade within a region, and a country's international trade with other countries in the world.

In the case of emerging markets in Central Asia, Felipe and Kumar (2010) found that trade flows increased by margins of 28–63 per cent, whereas intra-regional trade increased by 100 per cent, with improved trade facilitation. Fuenzalida-O'Shee et al. (2018) showed that excessive documentation requirements and high container costs for exports hindered trade in Latin America. Oparanya et al. (2019) assessed bilateral trade flows between the countries in the EAC free trade area and found that factors such as the corruption index, diaspora remittances, contiguity, and country size affected trade positively. Shinyekwa and Othieno, (2013) assessed the impact of entering into a regional trade agreement (RTA) in terms of whether it facilitates trade or diverts trade to other regions. They concluded that it is beneficial for countries to be in a RTA as it has trade creation benefits. Darku (2009) studied regional integration effects on Tanzania. The study used data for 23 countries that trade with Tanzania and found that for EAC and European Union countries, there were trade-creating effects for Tanzania. Mahona and Mjema (2014) studied the determinants of trade for Kenya and Tanzania in the EAC. They found that Tanzania's trade was mainly affected by economic size and that distance negatively affected Tanzania's exports, which is an expected outcome of gravity model theory.

In assessing intra-African trade, studies have found that trade can increase significantly if the impediments to trade, such as inadequate infrastructure, excessive time wasted at the border, and an inadequate regulatory environment, are addressed. Further, this would greatly lower transport and border costs for trading, thus increasing trade flows and revenues (Gad 2009; Limao and Venables 2001; Longo and Sekkat 2004; Perez and Wilson 2008). Examples of border costs cited in the studies include time spent at the border points, for example due to breakdown of the processing systems or lack of access to the internet to transmit information, too much documentation, and a lack of proper inspection procedures.

Empirical studies on the impact of SCT in the EAC region have focused on the exports of Kenya and Uganda and have shown mixed outcomes. Nabatanzi (2015) assessed the impact of SCT on the performance of one firm (Don Uganda Limited), whereas Bifwoli (2016) assessed the impact of SCT on trade revenues and the facilitation of trade in Kenya. Using both qualitative and quantitative methods, the two studies arrived at different conclusions. In the case of Uganda, the results indicated that the SCT had led to a loss of domestic revenues and increased costs to businesses, whereas, for Kenya, the results indicated a significant increase in trade volumes, which implied improved trade facilitation. However, there was a fall in customs revenue resulting from a narrower tax base following adoption of SCT. The loss of revenues for Uganda was cited to be due to the high initial capital investment required for set-up, the long waiting period caused by network failures, and persistent stopovers for product verification at the border points. A more recent study by Eberhard-Ruiz and Calabrese (2017) confirmed that there had been a great improvement in customs clearance time following the implementation of SCT and improved port efficiency. However, transport costs remained significantly high due to a large number of weighbridges and police stops that were yet to be removed. The impact of SCT in the EAC region is inconclusive from the studies on the EAC countries. Thus, this paper adds to the debate, as it analyses the impact of the EAC-SCT on Tanzania's exports.

Other empirical studies assessing the impact of improvements in customs administration in facilitating trade have found substantial benefits on trade flows for those countries (Chimilia et al. 2014; Tosevska-Trpcevska 2014; Wilson 2010). Further, Wilson et al. (2005) found that trade facilitation indicators, including port and customs administration, increased trade flows significantly, particularly those of exports rather than imports. However, improvements occurred through the country's own efforts to develop its customs and port services. Wilson et al. (2003) found that behind-the-border barriers were important in determining trade flows. A study on Tanzania by Chimilila et al. (2014) found a significant positive relationship between the improvement of customs administration and export performance. Finally, Spence and Karingi

(2011) used trade facilitation indices developed by Perez and Wilson (2010)[4] to analyse the influence of trade facilitation on the export competitiveness of African countries. The study found that all the facilitation indicators were positively associated with total factor productivity and hence increased exports.

In addition to gravity models, other econometric and general equilibrium models are used in the literature to analyse the influence of trade facilitation on domestic economies (Ahmed et al. 2018; Bal et al. 2017; Baniya et al. 2019). Further, the measures of trade facilitation have evolved over time. According to World Trade Report of 2015 (WTO 2015), the most commonly used trade facilitation indicators include the World Bank's trade across border indicators and Logistics Performance Index (WB-LPI). These indicators measure policy inputs and outcomes that are important to a policy maker. For instance, the trade across border indicators measure policy outcomes, whereas the WB-LPI measures both inputs and outcomes. Dummy variables are also used as a proxy measure for change in trade policy.

The analysis of the empirical literature reveals that a number of approaches are used to analyse trade facilitation initiatives and their influence on flows of exports or imports in various countries. Some studies have used a combination of qualitative and quantitative approaches in assessing trade facilitation impacts (Bifwoli 2016; Chimilila et al. 2014; Nabatanzi 2015) whereas others have focused on quantitative approaches (Ahmed et al. 2018; Bal et al. 2017; Baniya et al. 2019; Darku 2009; Felipe and Kumar 2010; Fuenzalida-O'Shee et al. 2018; Mahona and Mjema 2014; Perez and Wilson 2010; Spence and Karingi 2011; Tosevska-Trpcevska 2014; Wilson 2010; Wilson et al. 2003; Wilson et al. 2005). The advantage of qualitative (primary) assessment is the authenticity of information gathered, albeit time consuming and costly. This study therefore opts to adopt both descriptive and quantitative approaches in assessing the impact of EAC-SCT on Tanzania's exports.

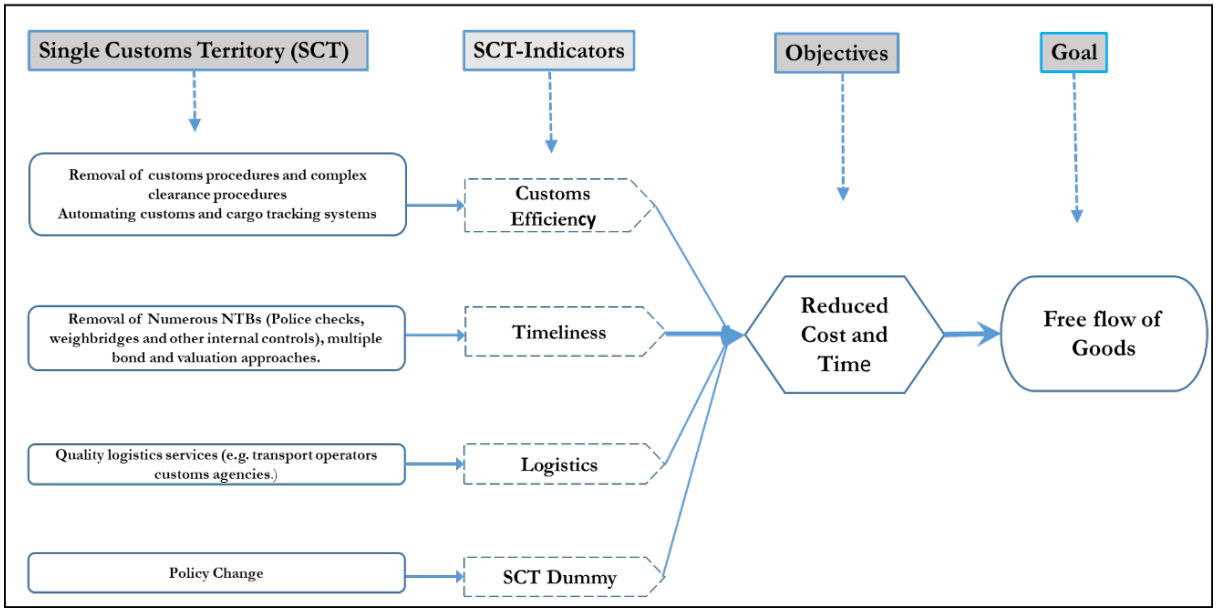
4 Conceptual framework and methodology

4.1 Conceptual framework

In the recent past, customs administration has undergone tremendous transformation with focus on trade facilitation gaining more prominence, amongst other roles of revenue collection, risk management, and protection of the illicit flow of goods (Chimilia et al. 2014). Before the implementation of EAC-SCT, there were significant challenges in clearing large volumes of goods through customs, leading to border delays and increased time and trade costs. The removal of complex customs procedures, harmonization and simplification of the customs process, and automation of customs systems were aimed at improving customs efficiency through reduced time taken in clearing cargo at the border/port and reduced trade costs, ultimately enhancing the seamless flow of goods within the region (USITC 2012).

[4] (i) improvement of infrastructure, (ii) information and communication technology changes, (iii)changes introduced at the borders to improve efficiency, and (iv) regulatory improvements.

Figure 4: Potential benefits of Single Customs Territory in EAC



Source: authors' illustration based on USITC (2012).

This study uses two sets of indicators for SCT sourced from the World Bank. The first set of indicators relates to border and document compliance indicators of trading across borders as measured by the World Bank Doing Business Report, 2020 (World Bank 2020b). Border compliance measures customs regulations and inspections that are mandatory for cargo to cross borders as well as the time and costs associated with the handling of goods at the port or border. Document compliance, on the other hand, measures the time and costs associated with obtaining, preparing, processing, presenting, and submitting documents. All electronic or paper submissions of information requested by any government agency in connection with the shipment/cargo are considered to be documents obtained, prepared, and submitted during the export process (World Bank 2020b).

The second set of indicators relates to the international Logistics Performance Index (LPI), which measures the relative ease and efficiency with which products can be moved from the port of entry into the country (World Bank 2018). Tanzania, for example, with its Indian Ocean coastline, plays a critical role in clearing goods to the landlocked countries of Rwanda, Burundi, and Uganda. The LPI measures efficiency using six dimensions. However, the study uses three indicators focusing on customs efficiency, timeliness of cargo reaching destination within the scheduled or expected delivery time, and logistics. Trade facilitation is also supported by harmonized institutional, legal, and regulatory measures both within the country and across the EAC borders. This set of indicators captures the qualitative aspects of SCT, which enables the comparison of rankings and performance of countries across the EAC region and an assessment of increases in trade volumes resulting from improved trade facilitation. The indicators are used to quantitatively model the impact of SCT in EAC on the performance of Tanzania's exports.

4.2 Empirical methodology

The study adopts the gravity model which has been widely used to assess bilateral trade flows. It estimates an augmented gravity model to examine the influence of EAC-SCT on Tanzania's exports in EAC. The econometric gravity model is stipulated in equation (1) below in logs:

$$lnX_{ij} = \beta_0 + \beta_1 \ln(Y_i) + \beta_2 \ln(Y_j) + \beta_3 \ln(D_{ij}) + \beta_4 \ln(A) + e_{ij} \quad (1)$$

X_{ij} is exports from Tanzania to other East African countries, β_0 is constant, Y is gross domestic output for the countries, D is physical distance between capital cities in EAC countries, and 'A' captures other factors. Table A2 in the Appendix gives a detailed summary of all the variables considered important for analysis of the impact of implementation of the EAC-SCT on Tanzania's exports, their measurement, definitions, and a priori expectations.

As illustrated in Figure 4 and following Perez and Wilson (2010), the gravity model includes indicators for SCT that capture the qualitative aspects: customs efficiency, timeliness, logistics from World Bank, and a SCT dummy. Further, following (Tosevska-Trpcevska 2014; Wilson 2010; Wilson et al. 2003; and Wilson et al. 2005), the quantitative aspects of SCT are modelled: time taken for border and document compliance, and the costs of border and document compliance. Other control variables include: the exchange rate as a measure of competitiveness; country policy and institutional assessment (CPIA) trade rating and quality of administration to capture the role of institutions; CPIA internet use by individuals as percentage of population and mobile subscriptions to capture e-commerce; and common market dummy to capture policy change.

The commonalities of shared language, borders, and colonial history foster trade within the EAC countries (Darku 2009; Mahona and Mjema 2014; Shinyekwa and Othieno 2013). We model one dummy for common colony from the fact that Kenya, Uganda, and Tanzania may have had one common colonial master, while Burundi and Rwanda had a different colonial master, which is also described in Table A2. The 'e' captures the error term, that is, all other factors necessary but not represented in the model formulations. Equation (1) is estimated in logarithms to enable us to interpret the coefficients as elasticities.

However, it is important to note that despite the wide use of the gravity models in assessing trade flows, there are apparent weaknesses in their ability to analyse all trade-related issues. Gravity models are sensitive to specification, which may take many different forms depending on what is being analysed (Shepherd 2016). More recent literature addresses these specification problems by estimating the theoretical gravity models developed by Anderson and Van Wincoop (2003).

4.3 Estimation procedure and data sources

Equation (1) is estimated using panel estimators of random/fixed effects, the selection of which is determined by a Hausman test. The trade data used for analysis is from various sources for the five countries in the EAC—Tanzania, Uganda, Kenya, Rwanda, and Burundi—for the period from 2004 to 2018. Trade statistics are sourced from the World Integrated Trade Solutions (WITS) database (WITS 2020), the EAC Annual Trade and Investment Report (EAC 2018), World Bank Country Policy and Institution Assessment and Bank of Tanzania (World Bank 2020a). The macro variables for the GDP and exchange rate are sourced from World Development Indicators from the World Bank database measured in purchasing power parity (PPP) terms (World Bank 2019d), the World Bank Doing Business Reports (World Bank 2013, 2016, 2019a, 2019b, 2020b), and World Bank Logistics Performance Indicators (LPI) (World Bank 2019c).

5 Results and findings

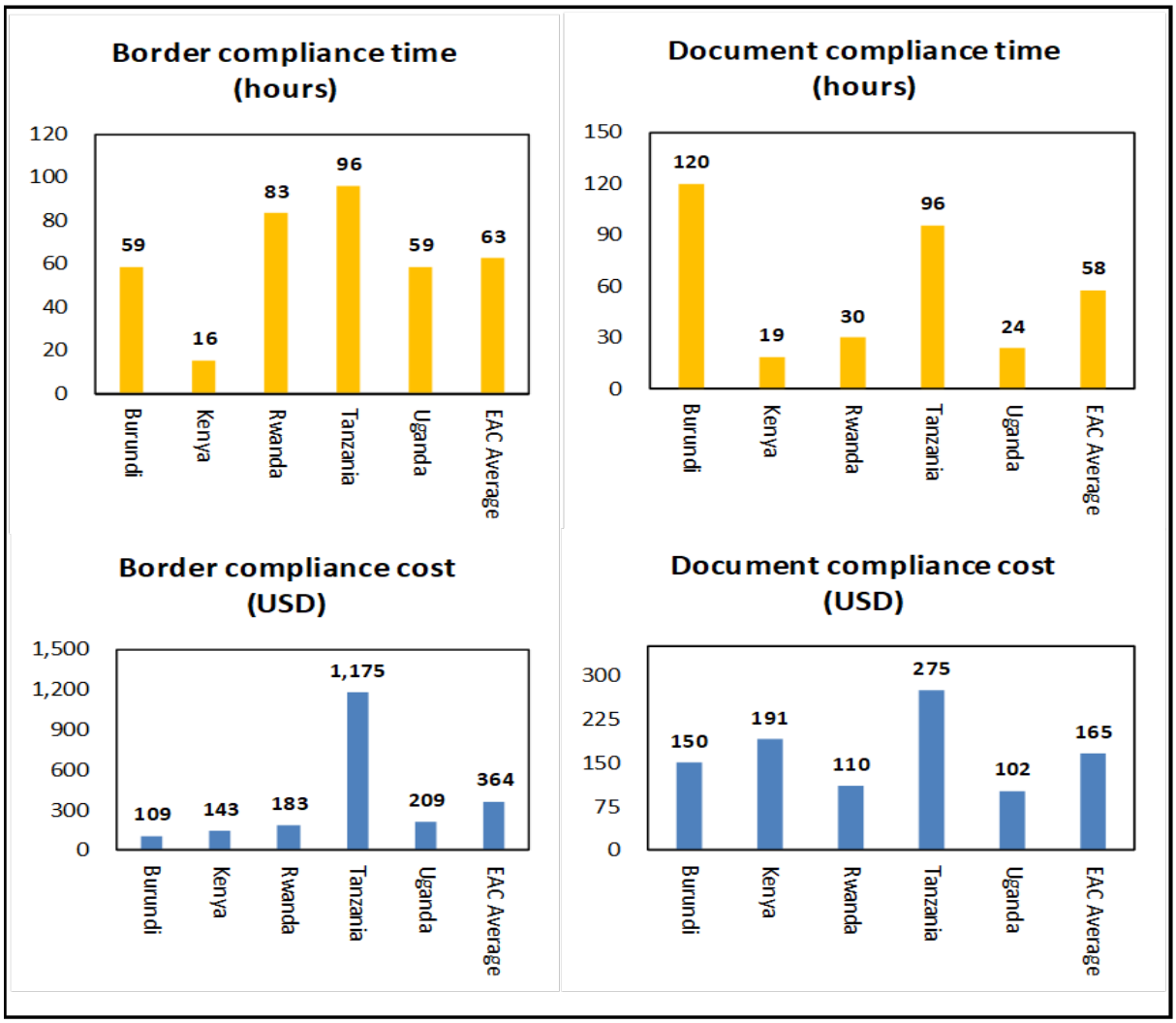
5.1 Descriptive results

Analysis of time and costs of border and document compliance

With the introduction of EAC-SCT in 2014, it was expected that the time and costs at the borders and document compliance would reduce significantly. The World Bank Doing Business Regional Report for East African Community 2019 ranked the EAC region as 142 (out of 190 countries) on trading across borders with a score of 50.59, an improvement from 150 (out of 189 countries) in 2016 with a score of 45.84 (World Bank 2016, 2019a). The time and costs associated with the clearance of goods across borders reduced over the period, with the EAC border compliance time to export reducing to an average of 62.5 hours in 2020 compared to 72.96 hours in 2015.

However, there are variations across EAC countries. The indicator for trading across borders reveals that Tanzania's performance has been consistently lower than the other EAC countries (Figure 5).

Figure 5: Trading across borders in EAC, 2020



Source: authors' computation based on World Bank, Doing Business Report 2020 (World Bank 2020b).

In Tanzania, an exporter takes 96 hours and is charged US$1,175 to comply with all border requirements, compared to the EAC average of time of 63 hours and an average cost of US$364. Similarly, obtaining, preparing, and submitting export documentation takes 96 hours for an exporter in Tanzania at a cost of US$275, compared to the regional average of 58 hours at a cost of US$165. The World Bank (2018) attributes the high border compliance and documentation costs to lengthy procedures at the Tanzanian border, which largely rely on physical inspection and bureaucratic procedures. These delays and costly border and documentation compliance weigh down the export competitiveness.

Overall, considering the two periods before and after implementation of the EAC-SCT, the average costs and time have significantly declined for all the countries. Tanzania's improvement can be seen from the time taken to clear goods for exports having reduced from 23 days to 8 days, the cost of containers having reduced from US$1832 to US$725, and the number of documents having reduced from 9 days to 7 days (Table 2).

Table 2: Trading across borders before and after implementation of EAC-SCT

	Before EAC-SCT			After EAC-SCT		
	Time to export (days)	Cost of containers (USD)	Number of documents (days)	Time to export (days)	Cost of containers (USD)	Number of documents (days)
	2006-2014	2006-2014	2006-2014	2015-2019	2015-2019	2015-2019
Burundi	40	4684	9	8	129	9
Kenya	29	3076	7	2	167	8
Rwanda	41	3262	13	6	147	7
Tanzania	**23**	**1832**	**9**	**8**	**725**	**7**
Uganda	34	4002	38	5	156	
Regional Average	33	3371	15	6	265	8

Source: authors' computation based on World Bank, Doing Business database (World Bank 2019b).

It was envisaged that the improvements would facilitate greater volumes of goods across borders. Although all the indicators for Tanzania were below the regional average before implementation of the SCT, on average, they remained above the regional average after implementation of the SCT. The average cost of containers between 2015 and 2019 was US$725, compared to a regional average of US$265, implying slow progress after implementation of the SCT.

Since 2015, the costs of documentation and border compliance have remained at the same level for all EAC countries. However, Tanzania's costs have remained relatively higher than all EAC countries, charging US$1,175 for border compliance and US$275 for documentation compliance when exporting, and US$1,350 and US$375, respectively, when importing (Table 3).

Table 3: Border and document compliance costs in EAC, 2015–19

	Border compliance cost (USD)			Document compliance cost (USD)		
	2015	2019	Change %	2015	2019	Change %
Burundi	108.9	108.9		150.0	150.0	0.0%
Kenya	142.5	142.5	0.0%	190.5	190.5	0.0%
Rwanda	183.3	183.3	0.0%	110.0	110.0	0.0%
Tanzania_exports	1,175.0	1,175.0	0.0%	275.0	275.0	0.0%
Tanzania_imports	1,350.0	1,350.0	0.0%	375.0	375.0	0.0%
Uganda	209.4	209.4	0.0%	101.9	101.9	0.0%
Regional average	528.2	528.2	0.0%	200.4	200.4	0.0%

Source: authors' computation based on World Bank, Doing Business database (World Bank 2019b).

Kenya, Rwanda, and Uganda lowered their border compliance times by 44.6 per cent, 14.4 per cent, and 30.4 per cent, respectively, during the 2015–19 period (Table 4). However, the costs remained unchanged for Tanzania and Burundi. Rwanda, Tanzania, and Uganda lowered their document compliance times by 29 per cent, 20 per cent, and 62 per cent, respectively. The drop in time taken at the border can be attributed to the adoption of one-stop border posts through the single window system under the SCT, which makes clearing possible under one roof, hence faster.

Table 4: Border and document compliance time in EAC 2015–19

	Border compliance time (hours)				Document compliance time (hours)			
	2015	2019	Change %	Period average	2015	2019	Change %	Period average
Burundi	58.7	58.7	0.0%	58.7	120.0	120.0	0.0%	120.00
Kenya	28.0	15.5	-44.6%	22.7	19.0	19.0	0.0%	19.00
Rwanda	97.3	83.3	-14.4%	94.5	42.0	30.0	-29%	39.60
Tanzania_exports	**96.0**	**96.0**	**0.0%**	**96.0**	**120.0**	**96.0**	**-20%**	**100.80**
Tanzania_imports	**402.0**	**402.0**	**0.0%**	**402.0**	**264.0**	**240.0**	**-9%**	**244.80**
Uganda	84.8	59.0	-30.4%	72.6	63.8	24.0	-62%	53.28
Regional average exports	73.0	62.5	-18%	68.9	73.0	57.8	-22%	66.5

Source: authors' computation based on World Bank, Doing Business database (World Bank 2019b).

Customs and electronic cargo clearing systems

The implementation of the EAC-SCT was intended to improve customs operations through the harmonization and interconnection of the customs systems in the region, to facilitate the flow of information between customs authorities and also to increase the use of information and communication technology to enable traders to benefit from more reliable and faster clearance. However, this has not been fully attained in the EAC region as countries have only upgraded their customs clearance software at the national level without regional harmonization (WTO 2019). Rwanda, Uganda, and Burundi use ASYCUDA World. Kenya uses the Integrated Customs Management System (iCMS), while Tanzania replaced ASYCUDA++ with the Tanzania Customs Integrated System (TANCIS). This implies that countries are using different computer systems for customs clearance, which does not allow the seamless flow of information across borders, is ultimately a potential source of delay in cargo clearance, and imposes additional costs on traders.

In the EAC region, only Uganda, Kenya, and Rwanda have implemented a joint real-time electronic cargo-monitoring system to track goods transported along the northern corridor, and this has helped reduce transit time, has prevented cargo theft, and has boosted revenues. Tanzania, on the other hand, is yet to extend the electronic cargo-tracking system to the northern corridor.

The lack of interface in the electronic cargo systems within the EAC region has resulted in cargo delays and has heightened the risk of cargo theft and/or diversion of transit goods, thereby hampering implementation of the SCT (WTO 2019).

The World Bank Logistics Performance Index (WB-LPI)

The World Bank Logistics Performance Index (WB-LPI) (World Bank 2019c), aggregated for 2012–18 period, ranks Kenya as the 63rd best-performing country in the EAC region, followed by Rwanda as 65th, Tanzania as 67th, Uganda as72nd, and Burundi as 154th (Table 5). Using the six components of the LPI, Tanzania's performance is high in the components of infrastructure (2.72) and timeliness (3.34), an improvement on the 2007 scores of 2.0 and 2.78, respectively. This can be attributed to improved port efficiency and infrastructure networks including port, roads, and rail. However, Tanzania's customs efficiency metric at (2.66) is lower compared to Uganda (2.78) and Rwanda (2.68), and is the same as Kenya's (2.66), calling for customs modernization and streamlining procedures to reduce time to trade and ease clearance at the border (World Bank 2018).

Table 5: Logistics Performance Index aggregate for 2012–18 period

	Overall LPI score	Customs	Infrastructure	International shipments	Logistics competence	Tracking & tracing	Timeliness
		(1)	(2)	(3)	(4)	(5)	(6)
Kenya	2.93	2.66	2.68	2.86	2.88	3.11	3.35
Rwanda	2.90	2.68	2.60	3.14	2.77	2.83	3.31
Tanzania	**2.88**	**2.66**	**2.72**	**2.89**	**2.80**	**2.85**	**3.34**
Uganda	2.79	2.78	2.45	2.82	2.70	2.69	3.27
Burundi	2.22	1.90	2.00	2.28	2.33	2.23	2.55

Source: authors' compilation based on World Bank Logistics Performance Index database (World Bank 2019c).

Correlation analysis of Tanzania's merchandise exports with time, costs, and LPI

The descriptive statistics in Table 6 show that merchandise exports for Tanzania are positively correlated with GDP but negatively correlated with export time and trade costs. This negative correlation may imply that border and documentation delays slow down the flow of goods and hence result in increased time taken to clear goods and trade costs. This is supported by the positive correlation between export time and trade costs, which means that the longer the time taken to clear goods, the higher the costs incurred. The indicators for quality of logistics, time for shipment, and customs efficiency have the expected sign with merchandise exports for Tanzania. Export time, time for shipment, and quality of logistics, have a skewness close to zero (negative), implying a left-hand tail slightly smaller than the right-hand tail. Merchandise exports and customs efficiency are positive and symmetric distribution with skewness close to zero. All variables show a kurtosis close to 3, implying that the dataset has tails close to normal distribution. Correlation coefficients are all significant and correctly signed, as expected.

Table 6: Correlation coefficients for Tanzania's Merchandise export with trade costs, export time and LPIs

Observations	GDP	Exports_Tz	Trade_Cost	Export time	Time for shipment to reach consignees	Quality of logistics	Customs efficiency
GDP	1						
Exports_Tz	0.633	1					
Trade_Cost	-0.719	-0.549	1				
Export time	-0.832	-0.267	0.494	1			
Time for shipment to reach consignees	0.769	-0.417	-0.502	-0.620	1		
Quality of logistics	0.767	0.232	-0.464	-0.716	0.918	1	
Customs efficiency	0.709	0.128	-0.510	-0.805	0.823	0.888	1
Standard deviation	0.317	0.336	0.245	0.468	0.156	0.143	0.121
Skewness	-0.484	0.409	-0.031	-0.890	-0.797	-0.217	0.496
Kurtosis	2.106	2.624	1.899	2.295	2.113	1.558	1.547

Source: authors' computation based on World Bank Logistics Performance Index database (World Bank 2019c), World Development Indicators (World Bank 2019d) and World Bank Doing Business database (World Bank 2019b).

5.2 Empirical results

Table 7 and (Tables A3 and A4 in the Appendix) present the estimation results of the impact of the SCT on Tanzania's exports. The dependent variable is the value of merchandise exports from Tanzania to the EAC countries in logs. We use a random effects panel model estimation following the Hausman test results, with the option of robust, to deal with heteroscedasticity in the data. Following Wilson (2010), we estimate three versions of equation (1). Model 1 has a measure of time taken at the border and model 2 has trade costs (both quantitative measures of the impact of SCT). Model 3 has the SCT proxies that capture its qualitative aspects. We also define the cluster variable for each group by distance to allow for within-group correlation of the error term so that the standard errors are not understated (Moulton 1990).

The results from models 1–3 indicate that GDP positively influences trade in Tanzania. An increase of 1 per cent in importer country GDP tends to increase Tanzania's exports by an average of 0.4 per cent, whereas a 1 per cent increase in GDP for the exporter country increases Tanzania's exports by 0.62 per cent (model 1), 0.57 (model 2), and 1.02 per cent (model 3). The coefficients for the importing countries are all statistically significant at 5 per cent, whereas the coefficients for the exporting country are significant at various levels of 1 and 5 per cent. The coefficients for trade in goods in the literature have been found to be close to 1 and some theories consider it to be exactly equal to 1 (Shepherd 2016).

Two plausible reasons are advanced in the literature to explain GDP elasticity of less than 1. The first is a bias towards home markets as opposed to external markets and the existence of trade barriers that tend to lower trade (Deardorff 1995; Frankel 1997). Based on the theoretical expositions, a coefficient of less than 1 may partly be explained by Tanzania's preference to export more to regions other than the EAC, the dominance of home effect bias (Mahona and Mjema 2014), and possibly some existing trade barriers. The elasticities for trading partners in the EAC are fairly low at about 0.4, implying that the demand for Tanzania's exports is not as sensitive to changes in the economic size of trading partners, which has an indication on the quality (value added) and composition (products/goods) demanded by the EAC countries.

The coefficient for distance is, as expected, negative and significant at 1 and 5 per cent. An increase of 1 per cent in distance reduces trade by more than 1 per cent, which is an expected outcome for trade in goods that incur more costs due to transportation, given the physical distance. The estimated elasticity is around -1 (Shepherd 2016), which is consistent with the finding. A change of 1 per cent in distance reduces exports by 1.3 per cent, implying the longer the distance in kilometres, the lower the possibility of trade, given the higher costs to trade. The results based on trade logistic indicators are captured by customs efficiency, timeliness, and the logistics of exporters and importers. Model 3 shows a positive and significant relationship between the overall logistics indicator and Tanzania's merchandise exports. Improving the trade logistics of the exporter country by 1 per cent leads to a 4.5 per cent increase in Tanzania's exports. The empirical findings are consistent with the World Bank's overall LPI of 2.88, having been boosted by infrastructure network, connectivity in international shipments, logistics competence, and tracking and tracing indices.

However, customs efficiency and timeliness have a negative relationship with Tanzania's exports (model 3). The customs efficiency of the exporter and of the importer affect Tanzania's exports negatively. This could imply the existence of customs inefficiencies in both the exporter and importer countries. In addition, the timeliness of cargo reaching its destination within the scheduled or expected delivery time may be affected by longer hours at the border and document clearing time (Table 4). These findings are consistent with the estimation results from models 1 and 2, which show that border and document compliance costs and time to export goods negatively affect Tanzania's exports. Increasing border and document compliance time by 1 per cent reduces exports by 1.3 per cent, while a 1 per cent increase in border and document compliance costs reduces exports by 0.3 per cent. Similar findings were reported by Tosevska-Trpcevska (2014), Wilson (2010), Wilson et al. (2003), and Wilson et al. (2005). Moreover, Nabatanzi (2015) found a negative relationship in the study for Uganda, citing increased costs following implementation of the EAC-SCT.

Table 7: Impact of SCT on Tanzania's exports

	Dependent variable (ln Exp ij)		
Independent variables	Model 1	Model 2	Model 3
GDP importer	0.484**	0.418***	0.470***
	(0.226)	(0.150)	(0.129)
GDP exporter	0.619*	0.566**	1.022**
	(0.316)	(0.312)	(0.472)
Distance	-1.267**	-1.360***	-0.902***
	(0.181)	(0.246)	(0.296)
Exchange rate	1.436**	1.384***	-0.773**
	(0.439)	(0.450)	(0.371)
Time taken at border	-1.317**		
	(0.467)		
Trade costs		-0.270**	
		(0.131)	
Customs efficiency exporter			-5.695**
			(2.171)
Customers efficiency importer			-3.839***
			(0.344)
Logistics importer			6.48**
			(0.702)
Logistics exporter			4.570**
			(1.714)
Timeliness exporter			-0.552
			(1.261)
Timeliness importer			-1.947***

			(0.307)
CPIA trade rating	0.494	0.460	1.273***
	(1.305)	(1.113)	(0.352)
Internet connectivity	-1.066**	0.236	-2.779*
	(0.357)	(4.062)	(1.494)
CPIA administration	2.011	3.065**	
	(1.799)	(1.481)	
Mobile cellular	0.083	0.084	
	(0.083)	(0.511)	
SCT_Dummy			-0.031
			(0.406)
Common colony dummy	1.813*	2.374***	
	(0.999)	(0.707)	
Common market dummy	0.424*	0.498***	
	(0.241)	(0.190)	
Constant	9.702	11.323*	-8.489
	(9.417)	(7.075)	(10.208)
R Squared	0.86	0.79	0.89
Observations	60	60	60

Note: standard errors are robust and clustered by distance. *ρ<0.10, **ρ<0.05 and ***ρ<0.01.

Source: authors' computation based on World Bank Logistics Performance Index database (World Bank 2019c), World Development Indicators (World Bank 2019d), Country Policy and Institution Assessment database (World Bank 2020a) and World Bank Doing Business database (World Bank 2019b).

The common market dummy in models 1 and 2 in Table 7, are found to be positive and significant, as expected, implying that implementation of the common market has facilitated trade within the EAC. The exchange rate in models 1 and 2 has a positive and significant relationship, implying that a real depreciation has improved competitiveness and export flows (Shinyekwa and Othieno 2013). The indicators for SCT are estimated separately with the control variables to check the sensitivity of the estimated coefficient (see Table A3 in the Appendix, model 3). The SCT_dummy has a negative sign, implying that Tanzania's exports were lower in the period after implementation of SCT. The results suggest room for further improvement particularly in the time taken to clear goods, customs administration, and document and border compliance costs.

The role of institutions is positive and significant at 1 per cent, which implies that proper implementation of trade policy frameworks by Tanzania enhances its trade in goods. However, the coefficient for use of e-commerce is negative and significant at 10 per cent, implying slower uptake in the use of e-commerce in Tanzania despite the internet connectivity across the country.

5.3 Findings in the perspective of EAC

Despite the significant progress in the realization of provisions of the EAC treaty, challenges still exist. Findings from the descriptive and empirical analysis suggest that the existing challenges hinge on border and document compliance time and costs, which may be explained or supported by the following observations.

While there has been a reduction in trading costs in the EAC region, Tanzania's trade costs remain relatively higher than its counterparts in the EAC even after implementation of the SCT (see Figure 5). Elements of trade costs relate to higher border and documentation costs. Although implementation of the SCT has led to the removal of several non-tariff barriers, other impediments evidently continue to affect trade in the EAC (WTO 2019). Trading across borders remains a challenge for the EAC countries, as shown in the World Bank Doing Business Report for 2020 (World Bank 2020b). The report ranks Rwanda at 38, Kenya at 56, Uganda at 116, Tanzania at

141, and Burundi at 166 out of 190 countries in the world. The ranking is an indication of the existing challenges that affect exports/movement of goods across borders.

Customs-related challenges persist with regard to the following:

- Customs documentation is yet to be fully harmonized in the EAC. Further, the EAC region has several export promotion schemes that countries implement. Kenya, Uganda and Tanzania have implemented manufacture under bond and duty drawback schemes while Rwanda and Burundi are in the process of implementation.
- There are harmonized measures for the sanitary and phytosanitary (SPS) protocol, which were developed in line with WTO SPS agreements for the EAC in 2013. However, Tanzania is yet to ratify the SPS protocol, whereas the other EAC countries have ratified it. As a result, this limits exports to the region of goods such as food stuffs, fish and their associated products, and some plants and mammals.
- There are challenges related to technical regulation and the recognition of inspection certificates from respective EAC countries despite the prevailing provision in the Common Market Protocol Article 5, which requires countries to meet the same standard for the production of goods and services and to carry out standardized tests on them to meet the required quality.
- Despite all the EAC countries signing the Avoidance of Double Taxation Agreement in 2011, Kenya, Rwanda, and Uganda have ratified the agreement, whereas Tanzania and Burundi are yet to ratify it (as at December 2017).

In a WTO portal which collects complaints from traders, it was found that out of 79 active complaints, 42 complaints were from traders in the EAC countries and 37 from traders in COMESA and SADC countries (as at September 2017).

With regard to trade facilitation initiatives, Kenya, Uganda, and Rwanda have submitted their instruments of acceptance to the WTO Trade Facilitation Agreement, but Tanzania and Burundi are yet to do so. Further, the same countries have ratified the International Convention on the Simplification and Harmonization of Customs Procedures under the revised Kyoto convention (RKC), while Burundi has not ratified it and Tanzania is not party to the RKC.

6 Conclusions and policy recommendations

The main objective of this paper was to assess the impact of the Single Customs Territory in the EAC on Tanzania's exports. The study uses both descriptive statistics and empirical analysis for data spanning the 2004–18 period. The study's findings reveal that Tanzania's merchandise exports to EAC countries have remained low under the SCT regime.

Tanzania's merchandise exports to the EAC countries show a downward trend in the period under review, particularly after the year 2014. Results from the descriptive analysis point to relatively higher trade costs and significant time taken to export Tanzania's goods in the EAC. This is supported by findings from the empirical analysis, with a negative coefficient for border compliance time and trade cost. This calls for reductions in border and documentation compliance times and costs to facilitate the free flow of goods in the EAC. Harmonizing the electronic cargo-tracking systems on the northern and central corridors would also help reduce cargo transit time, prevent cargo theft, and boost export revenues. Further, expediting harmonization and interconnection of the customs systems to aid the flow of information between customs authorities for faster and reliable clearance may reduce the costs and time associated with customs

inefficiencies. At the same time, modernization and streamlining of border procedures would reduce the time taken for clearance. This may require investment in supportive information technology infrastructure, legislation, and institutions, which would facilitate customs and ease the movement of goods across borders.

Further, like other countries in the region, Tanzania's exports to the EAC region are largely agricultural produce. Manufactured and chemicals exports have remained low in terms of value, with large shares going to Rwanda, Burundi, and Uganda. This may be due to low import demand, which has remained inelastic despite the good performance of economies in the EAC. Tanzania could focus on exporting niche products to the region, adding value to exports of crude materials and manufactured goods. This could be done by attracting investment in manufacturing industries, such as pharmaceuticals, textiles, and agro-based industries, as this would encourage value addition, promote competitiveness, and enhance global value chains.

Finally, some agreements are awaiting ratification and others are awaiting the submission of instruments of acceptance. For example, ratifying the SPS protocol and avoiding the double tax agreement could boost merchandise exports and investments to and from Tanzania. Further, political will and strong institutions are required for the achievement of integration processes or implementation of trade policies or agreements. The realization of benefits from implementation of SCT will be achieved through the member states investing in human capital, provision of resources to improve the infrastructure, customs administration, and logistics. This would support trade and improve the business environment, thereby enhancing intra- and extra-EAC trade.

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Appendix

Box A1: Single Customs Territory

The Single Customs Territory (SCT) is a part of the full realization of the Customs Union with goods circulating freely within the EAC region. Guided by EAC Treaty Articles 6 and 7, the EAC region adopted a destination model to develop the SCT. Development of the SCT also required the development of revenue management systems to ensure countries did not lose revenue in the process of implementing SCT and a legal and institutional framework that worked. It was intended that the SCT would address numerous challenges affecting trade within the EAC, including duplication of customs procedures; multiple security bond regimes; different valuation approaches; weak enforcement by some member countries; numerous non-tariff barriers; restricted cargo flows; and congestion at the ports. It was also intended to deal with complex clearance procedures. The 2014 SCT manual (EAC 2014), provides for the treatment of exports in various forms including in the following sections: 1.3 Cargo clearance; 4.0 exports from partner states to outside the EAC and temporary exports from the EAC to foreign countries: 5.8 transfer of goods that attract export transfer levies (intra-region); 6.0 exports to Export Processing Zones; and 10.6 scanning direct exports from partner states to foreign countries passing.

In summary the SCT operative principles are:

- Intra-EAC trade of goods incurs customs duties when they move from one country to another within the EAC and are also subject to local taxes as well as levies when moved to another member country.
- Imports into the EAC are declared once at the first point of entry, covered by a single regional bond system and taxes paid at destination.
- Exports from EAC are also covered by a single regional bond and monitored through an electronic cargo-tracking system.
- Activities involving clearance should be carried out through established one-stop border posts, through the single window system.

All taxes and duties are paid at the destination country, and countries have their own systems for managing revenues.

Some of the envisaged benefits of the SCT include: easier movement of goods within the EAC and improved trade within the EAC countries, lower trade costs from improved and automated clearing systems, proper coordination of agencies that clear goods in the EAC, and achievement of greater compliance within the EAC region.

Table A1: Intra-EAC domestic exports for major products, 2017 and 2018 (USD million)

Exporting country	Importing country	Description of goods	2017	2018
Tanzania	Kenya	Tea	14.36	18.47
		Maize	2.02	13.36
		Oil-cake and other solid residuals, of vegetable fats	14.54	12.79
		Sacks and bags used for packing goods	7.33	10.24
		Rolled iron or non-alloy steel,=600mm wide, clad, plated, coated	0.24	8.57
		Wheat or meslin flour	4.71	7.24
		Ceramic building bricks flooring support or filler tiles,etc.	0.78	7.00
		Live bonive animls	0.14	6.34
		Unglazed ceramic flags, paving, hearth or wall tiles; mosaic cubes, etc.	3.09	5.44
		Undenatured ethyl alcohol of an alcoholic strength <80%; spirits, etc.	3.97	4.53
		Table, kitchen, household and sanitary articles of aluminium	01	4.42
		Dried vegetable, whole, cut, sliced, broken or in powder	4.06	4.37
		Other knitted or crocheted fabrics	4.05	4.34
		Wood sawn or chipped lengthwise, sliced or peeled, 6mm thick	0.11	3.73
		Petroleum oils and oils obtained from bituminous minerals,other than crude	3.36	3.16
Tanzania	Uganda	Beauty, make up, skin-care (incl. suntan), manicure preparations	0.70	28.40
		Maize	0.00	24.50
		Petroleum oils and oils obtained from bituminous minerals,other than crude	0.21	7.80
		Uncoated kraft and oils obtained from bituminous minerals,other than crude	2.12	6.10
		Rolled iron or non-alloy steel, =600mm wide, clad, plated, coated	0.00	4.90
		Other furnishing articles, not coated elsewhere specified (excel. 48.02+03	8.56	3.50
		Carboys, bottles, flasks ampoules etc.; stoppers, lids of glass	0.96	3.30
		Glazed ceramic flags, paving, hearth or wall tiles; mosaic cubesetc.	0.36	2.60
		Rice	0.01	2.20
		Insulated wire, cables, etc.; optical fibre cables	0.00	1.90
		Twine, cordage, rope and cables	1.47	1.50
		Fish fillet and other fish meat, fresh, chilled or frozen	1.48	1.50
		Motor vehicles for the transport of goods	0.30	1.00
		Prepartions for oral or dental hygiene (incl. denture fixative)	0.00	0.90
		Cartons, boxes etc.; box files etc.; of paper paperboard etc.	0.11	0.80
Tanzania	Burundi	Minerals or chemical fertilisers, not elsewhere specified; other fertilisers	2.44	14.05
		Portland cement,aluminous cement, persulphate cement	4.66	3.93
		Minerals or chemical fertilisers, nitrogenous	11.57	3.56
		Maize	0.22	3.52
		Beauty, make up,skin-care (incl. suntan), manicure preparations	0.59	2.70
		Paper or paperboard labels of all kinds, whether or not printed	1.57	2.62
		Salt/pure sodium chloride whether or not contianing anti-caking agents; seawater	1.30	2.08
		Carboys, bottles, flasks ampoules, etc.; stoppers, lids of glass	2.72	1.82
		Sacks and bags used for packing goods	1.28	1.62
		Rolled iron or non-alloy steel, =600mm wide, clad, plated, coated	1.62	1.27
		Petroleum jelly; paraffin wax and other mineral waxes,etc.	1.45	1.04
		Hot-rolled iron or non-alloy steel,> 600mm wide	0.76	1.00
		Tableware, kitchenware and toilet articles, of plastic	0.51	0.82
		Mineral or chemical fertilisers, potassic	0.00	0.76
		Petroleum oils and oils obtained from bituminous minerals other than crude	0.41	0.75

Tanzania	Rwanda	Petrolium jelly; paraffin wax and other mineral waxes, etc.	11.16	13.25
		Beauty, make up, skin-care (incl. suntan), manicure preparations	4.35	6.98
		Portland cement, aluminous cement, persulphate cement	3.81	6.14
		Bricks, blocks, tiles and other ceramic goods	1.13	5.97
		Rice	0.03	5.53
		Tableware, kitchenware and toilet articles, of plastic	4.66	4.63
		Sacks and bags used for packing goods	2.32	3.81
		Rolled iron or non-alloy steel, =600mm wide, clad, plated, coated	3.95	3.72
		Carboys, bottles, flasks ampoules, etc.; stoppers, lids of glass	2.63	2.41
		Derricks, cranes; mobile lifting frames trucks fitted with a crane	0.03	1.95
		Baths, shower-baths and similar sanitaryware, of plastic	1.85	1.94
		Coal; briquettes, similar solid fuels manufactured from coal	0.39	1.32
		Petroleum gases and other gaseous hydrocarbons	0.03	1.25
		Uncoated craft papers and paperboads in rolls and sheets	1.68	1.08
		Undenatured ethyl alcohol of an alcoholic strenghth <80%; spirits, etc.	0.02	1.07
		Paper or paperboard labels of all kinds, whether or not printed	1.10	0.98
Uganda	Tanzania	Rolled iron or non-alloy steel, =600mm wide, clad, plated, coated	3.62	20.50
		Unmanufactured tobacco, tobacco refuse	0.05	9.15
		Electrical energy	6.93	7.65
		Paper or paperboard labels of all kinds, whether or not printed	3.61	4.10
		Milk and cream, concentrated or sweetened	1.95	2.60
		Items of plastic goods; stoppers, etc.	2.17	2.30
		Soap; organic surface-active products in bars	1.21	1.54
		Preparations for hair use	0.97	1.46
		Medicaments of mixed or unmixed products	4.54	1.40
		Other oil seeds and oleaginous fruits	0.27	0.85
		New pnuematic rubber tyres	0.22	0.79
		Beauty,make up, skin-care (incl. suntan), manicure preparations	0.64	0.76
		Palm oils	1.93	0.75
		Prepared explosives (excl. propellant powders)	0.27	0.40
		Other manufactured tobaccos and substitutes	0.11	0.39
Kenya	Tanzania	Medicaments of mixed or unmixed products	26.50	26.22
		Soap; organic surface preparations, mixed condiments and seasonings	16.38	23.84
		Rolled iron or non-alloy steel, =600mm wide, clad, plated, coated	4.62	15.68
		Items for conveyance or packing of plastic goods	13.71	12.30
		Electric accumulators (incl. separations thereof)	5.68	9.27
		Stoppers, caps and lids, capsules for bottles of base metals	7.13	7.89
		Salt/pure sodium chloride whether or not containing anti-caking agents; seawater	8.38	7.66
		Margarine, edible preparations of animal or vegetables fats or oils	5.50	5.74
		Printed books, brochures, leaflets and similar printed matter	0.82	5.55
		Non-soap surface active agents, washing preparations in powder, liquid etc.	4.97	5.50
		Insecticides, rodencides and similar products	2.35	4.68
		Trailers and semi-trailers, other vehicles, not mechanically propelled	0.67	3.64
		Other footwear with outer soles and uppers of rubber or plastic	3.54	3.33
		Trailers and semi-trailers, other vehicles, not mechanically propelled	11.17	2.76
		Other plastic plates not reinforced	2.39	2.65

Source: authors' adaption of Table 7c in EAC (2018: 322–61).

Table A2: Measurement, definitions and a priori expectations of variables

Variable	Name	Definition	Measurement	A priori expectation
X_{ij}	Exports	Exports from Tanzania to EAC countries	Value USD million	Dependent variable
Y_i	Gross domestic product	Gross domestic product exporting country	Nominal USD million	Positive
Y_j	Gross domestic product	Gross domestic product importing country	Nominal USD million	Positive
D_{ij}	Distance	Distance from one capital city to another. Modified following Wilson (2010) to have weighted (DisW) with time spent at the border and remoteness	Kilometres	Negative
A		Other factors important for analysis and control variables		
SCT	SCT dummy	Policy change	2014–18 unity, otherwise zero	Positive
	Customs	Efficiency in customs clearance process (speed, simplicity and predictability of formalities) by border control agencies, automating cargo-tracking systems	Rating of 1–5, very low for (1) to very high for (5)	Positive
	Timeliness	Timeliness of shipments in reaching destination within the scheduled or expected delivery time	Rating of 1–5, very low for (1) to very high for (5)	Negative
	Logistics performance indicator	Performance indicator measuring quality of logistics services (e.g., transport operators, customs brokers)	Rating of 1–5, very low for (1) to very high for (5)	Positive
Time	Time taken at the border	Number of days/hours for border and document compliance	Number of days/hours	Negative
Costs	Trade costs	Cost for border and document compliance	USD	Negative
Exchange rate	Exchange rate	Real effective exchange rate	Real effective exchange rate	Positive
		CPIA (trade rating) – trade assesses how the policy framework fosters trade in goods	CPIA trade rating (1=low to 6=high)	Positive
Institution	Institution	Quality of public administration to implement government policy and deliver services effectively	CPIA quality of public administration rating (1=low to 6=high)	Positive
Internet connectivity	Internet connectivity	Internet use by individuals as percentage of population to capture e-commerce/use of technology	(% of population) using internet via mobile phone, games machine, digital television etc.)	Positive
Mobile	Mobile phone usage	Mobile cellular subscription to capture e-commerce/use of technology	Mobile cellular telephone subscriptions (per 100 people)	Positive
Common market dummy	Common market	Policy change	2010–18 unity, otherwise zero	Positive
Common colony dummy	Common colony dummy	Trade ties	Countries sharing common colonizer unity otherwise zero	Positive

Source: authors' compilation based on World Bank Logistics Performance Index database (World Bank 2019c), World Development Indicators (World Bank 2019d), World Bank Country Policy and Institution Assessment database (World Bank 2020a) and World Bank Doing Business database (World Bank 2019b).

Table A3: Results for all SCT proxies

	Dependent variable (in Exp ij)					
		Indicators for SCT estimated separately				All indicators for SCT estimated jointly
Independent variables	BGM	Model 1	Model 2	Model 3	Model 4	Model 5
GDP importer	0.321***	0.398***	0.398***	0.399***	0.359***	0.470***
	(0.068)	(0.028)	(0.118)	(0.021)	(0.033)	(0.129)
GDP exporter	0.847***	0.522*	0.490**	0.964**	0.443*	1.022**
	(0.191)	(0.303)	(0.260)	(0.383)	(0.226)	(0.472)
Distance	-1.898***	-1.9***	-1.9***	-2.010***	1.843***	-0.902***
	(0.344)	(0.058)	(0.236)	(0.051)	(0.243)	(0.296)
Common market dummy		0.819***	1.443***	0.356	0.711**	
		(0.252)	(0.383)	(0.359)	(0.319)	
Exchange rate		-0.286	-0.554*	-0.223	-0.832**	-0.773**
		(0.314)	(0.306)	(0.64)	(0.243)	(0.371)
Logistics exporter		-1.592				4.570**
		(1.415)				(1.714)
Logistics importer						6.48***
						(0.702)
Timeliness exporter			-2.665**			-0.552
			(1.281)			(1.261)
Timeliness importer						-1.947***
						(0.307)
SCT_Dummy				-0.511**		-0.031
				(0.182)		(0.406)
Customs efficiency exporter					-2.689**	-5.695**
					(1.241)	(2.171)
Customs efficiency importer						-3.839***
						(0.344)
CPIA trade rating					1.571***	1.273***
					(0.185)	(0.352)
CPIA administration		-1.235***	-1.206***	-1.288***		
		(0.218)	(0.239)	(0.175)		
Internet connectivity						-2.779*
						(1.494)
Mobile cellular					0.973**	
					(0.491)	
Constant	3.754	14.194**	17.033***	2.35	9.213**	-8.489
	(5.252)	(6.173)	(4.820)	(8.22)	(4.65)	(10.208)
R Squared	0.72	0.76	0.77	0.77	0.78	0.89
Observations	60	60	60	60	60	60

Source: authors' computation based on World Bank Logistics Performance Index database (World Bank 2019c), World Development Indicators (World Bank 2019d), World Bank Country Policy and Institution Assessment database (World Bank 2020a) and World Bank Doing Business database (World Bank 2019b).

Table A4: Impact of SCT on Tanzania's exports

	Indicators for SCT estimated separately, with fewer control variables			
Dependent variable	Model 1	Model 2	Model 3	Model 4
GDP importer	0.349*** (0.117)	0.363*** (0.118)	0.334*** (0.093)	0.350*** (0.112)
GDP exporter	0.533* (0.345)	0.493* (0.315)	0.963*** (0.387)	0.859** (0.351)
Distance	-1.813*** (0.248)	-1.773*** (0.22)	-1.858*** (0.235)	-1.811*** (0.228)
Common market	0.813*** (0.239)	1.462*** (0.367)	0.356 (0.332)	0.717** (0.303)
Exchange rate	-0.245 (0.334)	-0.530* (0.317)	-0.165 (0.645)	-0.735** (0.266)
Logistics exporter	-1.609 (1.005)			
Timeliness exporter		-2.744* (1.671)		
SCT_Dummy			-0.494*** (0.177)	
Custom efficiency exporter				-1.005** (0.454)
Constant	12.163*** (4.229)	14.829*** (4.004)	1.058 (7.742)	7.392 (4.805)
R Squared	0.74	0.75	0.75	0.76
Observations	60	60	60	60

Source: authors' computation based on World Bank Logistics Performance Index database (World Bank 2019c), World Development Indicators (World Bank 2019d), World Bank Country Policy and Institution Assessment database (World Bank 2020a) and World Bank Doing Business database (World Bank 2019b).