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Intra-industry Trade and Sustainability of Export Competitiveness of Firms in the East African Community

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Abstract

The purpose of this paper is to examine the influence of intra-industry trade as a determinant of the sustainability of export competitiveness of firms in the East African Community (EAC). The study adopted the Grubel-Lloyd Index of intra-industry trade index model. The researcher computed the major trade outcome indicator of competitiveness on the data from 2004 to 2022. The study based on the top ten exports for each country to assess the sustainability of export competitiveness of a country`s overall basket of products as well as the specific sectors. Data was obtained from World Bank International Trade Centre (ITC) and World Bank development indicators. The results indicate that there is an increase in the share of intra-industry trade in some product groups such as Cereals, Plastics and articles thereof, Paper and paperboard; articles of paper pulp, of paper or of paperboard, Beverages, spirits and vinegar, Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings, Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere, Articles of apparel and clothing accessories, knitted or crocheted and Plastics and articles thereof for different countries.. However, the results indicate that overall, the EAC countries have very low intra-industry value in Coffee, tea, maté and spices. This is because large amounts of Coffee, tea, maté and spices are exported to other markets but to a small extent traded within EAC. The low intra-EAC trade could reflect the increased informal cross-border trade which is unrecorded, poor infrastructure, increased non-tariff barriers (NTBs) and the cumbersome administrative procedure in the EAC. In addition, the low RCA in other sectors reflect the lack of structural transformation which could explain a given considerable proportion of trade diversion and potential welfare losses in the EAC countries, reducing the sustainability of export competitiveness of firms in the foreign markets. Exporting countries need to take deeper reforms as regards structural transformation to enable firms to integrate into the Global Value Chains (GVCs) to enable them to increase their productivity by reviewing the existing policies to match the changes in the market. There is a need to examine the complicated nature of the EAC economy to further this study's findings. This study explains the complex nature of the intra-industry trade index as an indicator of sustainability of competitiveness in the EAC using quantitative data and that this complexity has

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an effect on the export competitiveness in import-oriented countries with less harmonization in their trade policies.

Keywords. Sustainable Export Competitiveness**,** Intra-Industry Trade Index, East African Community.

1. Introduction

Background

The composition of EAC trade is dominated by agricultural commodities, like coffee, tobacco, cotton, rice, maize, wheat and tea (Umuhoza, and Wang, 2021). More so, manufactured goods such as cement, petroleum, textiles, sugar, confectionery, beer, salt fats and oils, steel and steel products, paper, plastics and pharmaceuticals are also traded across the region. This has led to the increase in EAC intra-regional imports grew by 13.9% to USD 2.8 billion from USD 2.5 billion in 2017. Intra-regional exports grew by 5.6% to USD 3.2 billion in 2018 from USD 2.9% in 2017 (EAC, 2018). Export competitiveness is construed as the ability of a country or firm to produce and sell goods and services in foreign markets at price and quality that ensure long-term viability and sustainability (Adriana, 2010; Gaglio, 2015). It is considered a key indicator of the success of firms through increased export of value-added goods and services (Atkinson, 2013). Nevertheless, developing countries are recording more import volumes than export volumes compared to developed countries (UNCTAD, 2020). For example, in 2019 developed countries exported goods amounting to US$10.5 trillion, and services worth US$4.1 trillion. Whereas developing countries exported up to US$8.5 trillion in goods and US$2 trillion in services (UNCTAD, 2020). The enormous variations in exports between developing and developed countries clearly show that the export competitiveness of developing countries is still low which leads to a negative balance of payments positions (Arvis et al., 2018). EAC Partner States have performed poorly on merchandise trade over the period 2009-2018, with each country posting a growing trade deficit. All other EAC countries trade deficit grew over the period with Rwanda's growing by an average 129%, Kenya 97%, Tanzania 33%, and Uganda 36%.(EAC, 2020). In addition, the EAC import share with itself has declined from 10% in 2000 to 7.5% in 2020 and exports have remained a constant at around 17% (Krantz, Sebastian, 2024). This implies that the comparative advantage of EAC partner states is low and it also produces the same products thereby restricting intra-EAC trade. Thus, a need for an improvement of the revealed comparative advantage index to change the current export position in the EAC countries.

2.0: Theoretical motivation.

Theoretically, we suggest that concentration on production of certain products may affect the level of export competitiveness due to the following reasons. First, specialization enables the country to produce at lower costs than other countries (Nadeau, and Casselman, 2008). Second, being known for certain products increases the countries recognition in the global marketplace (Paul, J., & Dhiman, 2021). Access to larger markets increases the market size of firms, which results into increasing economies of scale and increased return to scale of firms thereby improving revealed comparative advantage index of participating firms and hence, sustainability

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of the export competitiveness of firms increases (UNCTAD ,2013). The sustainability of export competitiveness of a firm may be theoretically understood by employing the new trade theories (Alon *et al.*, 2011; Sunanda, 2010). This theoretical justification is that imperfect competition, the presence of economies of scale, increasing return to scale, product differentiation and network interactions by trade agencies play an important role in increasing productivity of a firm thereby improving the export competitiveness of a firm as compared to the traditional theories (Melitz, 2003; Sunanda, 2010).

The traditional trade theories fail to recognise many issues raised by firms. Instead of countries basing trade on comparative advantage, trade often occurs due to advantages of large scale production, experience and innovations (Porter, 1990). New trade theory offers a theoretical explanation of export competitiveness of the firms with economies of scale external to the firm but internal to the industry and increasing returns on the pattern of trade. This indicates that producers enjoying internal economies of scale are usually in position to influence the market through controls of prices and market share (Sunanda, 2010). According to the new trade theory, export logistics infrastructure such as financial services, insurance services, transport services, port handling services, logistics, customs facilitation and communication provide crucial inputs in trade thereby lowering the average cost of production, increasing the level of productivity of a firm resulting into increased export competitiveness (Ahmed, 2012; Melitz, 2003). This is because export logistics infrastructure may generate positive externalities that will contribute to increased productivity of firms. Thus firms' involvement in international trade will increase their economies of scale due to the existence of reliable and efficient export logistics infrastructure in the value chain which will enable access to large markets and in turn this will increase their productivity, hence contributing greatly to export competitiveness of the firm (Ahmed, 2012; Limão & Venables, 2001; Sunanda, 2010). The New trade theory is used in the theoretical model to explain the link between intra-industry trade, value chain, firm heterogeneity and export competitiveness. Maur, (2008) posits that intra-industry trade creates competition among firms which reduces the costs of trading and increases the availability of services to both importer and exporters through vertical intra-industry trade. The UNECA (2010) adds that access to larger markets in the region increases the market size of firms resulting into increasing economies of scale and increased return to scale hence increased productivity of firms participating in international trade, which is an indicator of an increased export competitiveness of firms. In support Schiff & Winters (2003) and UNCTAD (2013) show that intra-industry trade permits the firms with comparative advantage to expand their activities and to enhance their export competitiveness through exploiting economies of scale associated with larger markets which reduce the average cost.

This is so because the current international trade is dominated by the rise of intra-industry trade, huge innovative and extraordinarily large productive firms (Krugman, Obstfeld, & Melitz, 2012). Though the theory has a positive approach to the international trade, it does not address the dynamic implications of trade in terms of changes in export logistics infrastructures, growth and development of the trading countries (Sunanda, 2010) Travkinal & Tvaronaviciene, 2010) and it is based on the industry as the unit of analysis but not the firm (Ahmed, 2012). In this regard, the theory does not consider the changes in the trading environment which may affect the export

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competitiveness of firms (Ahmed, 2012; Ciuriak *et al., 2011; Lapham, 2*015). This then calls for the New-New Trade Theory to explain the firm trading environment.

The New-New trade theory posits that there is a firm level reallocation effect that arises due to firm heterogeneity. This is because even within industries, some firms are larger, more profitable and more productive than others (Melitz, 2003). Hence, productivity induces firms to self-select into export markets and therefore firm level productivity leads to increased export competitiveness of firms (Ciuriak *et al.,* 2011; Melitz, 2003). Thus, better performing firms survive and expand into foreign markets while the worst performing firms shut down in the face of competition (Melitz, 2003). This is supported by the empirical work of Medin (2014) who found out that firms that are more productive and larger are more likely to serve foreign markets and export greater volumes if those markets are relatively large. Similarly, firms may have market power and earn high profits in foreign markets due to availability of efficient logistics infrastructure (Medin, 2014). Melitz, (2003) adds that there are significant sunk costs at firm level that must be cleared to be able to profitably enter the foreign market such as foreign market intelligence, distributions services, and networks and after sales services. Because of this, intra-industry trade and value chain raise productivity efficiency of firms within the industry by expanding the market size which encourages firm to raise their productivity through innovations. Helpman (2004) posits out that at firm level, there is a strong relationship between exporting and innovations which increases firm productivity leading to increased export competitiveness. Therefore New- New trade theory makes a tight link between international trade and productivity implying that firms entering export markets tend to adopt newer and better production technologies and adapt quickly to market changes, which increases their productivity (Ciuriak *et al.,* 2011).

A critical analysis of the existing studies on export competitiveness show no study linking the revealed comparative advantage to export competitiveness in a combination developing landlocked, and majorly agricultural countries like Uganda, Burundi, Rwanda and sea coast countries of Tanzania and Kenya of the EAC in a liberalized international trade. While most studies have examined the comparative advantage of individual EAC countries, they have not addressed the effect of the revealed comparative advantage on the export competitiveness in the community jointly through intra-industry trade. Mkenda, (2022) only explored how the revival of the Community affected comparative advantage and intra-regional trade over time in the EAC. The study recommended further studies to explore other aspects of restoring intra-regional trade to post-Community levels through significant reductions in trade barriers. Thus, the current study examines the impact of the revealed comparative advantage on export competitiveness in EAC countries by addressing the following research question:

Thereupon, the current study examines the contribution of intra-industry trade on the sustainability of export competitiveness in EAC countries by addressing the following research questions:

RQ1. What is the effect of intra-industry trade on the sustainability of export competitiveness?

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The aforementioned research question was answered by using secondary data for a period from 2003 to 2022. The results show that all countries have a very low intra-industry value in Coffee, tea, maté and spices yet all the EAC have high Comparative Advantage in Coffee, tea, maté and spices. This is because large amounts of Coffee, tea, maté and spices are exported to other markets but to a small extent traded within EAC. The low intra-EAC trade could reflect the increased informal cross-border trade which is unrecorded, poor infrastructure, increased non-tariff barriers (NTBs) and the cumbersome administrative procedure in the EAC. The present study results are important in several ways. The study informs policy makers that sustainable improvements in export competitiveness require multifaceted changes in a range of policy dimensions in areas including reduction in NTBs, improvement on customs administration and improvement on infrastructure to enhance trade facilitation and services. This requires concerted efforts and persistent focus of the regional countries. The current study also adds on the already scant existing literature on export competitiveness by providing initial empirical evidence on the contribution of intra-industry trade using evidence from African developing countries (EAC countries).

The rest of this paper is organized as follows. The next section is literature review and hypotheses development. Next is the methodology section, which is then followed by results. The discussion section then follows and finally, summary and conclusion are provided.

2.1 Literature review and hypothesis development

International trade is undergoing major changes as economies are contributing to new trading patterns gaining shares in global trading systems where production is becoming fragmented (Baldwin & Lopez-Gonzalez, 2013). One way to assess and compare the extent to which trade integration has developed is by examining intra-industry trade between the trading partners. Intra-industry trade is a result of integrated trade structures leading to synchronized business cycles required for the stability of the monetary union (Baldwin & Lopez-Gonzalez, 2013). The intra-industry literature argues that a higher degree of intra-industry trade over time leads to an advanced level of economic integration, diversification of the economy and industrial development. It also leads to lower frequency of symmetric shocks between trading partners which results in macroeconomic stability in a trading block.

The uncertainty about the final price of traded goods reduces the value of bilateral trade flows. Intra-industry trade would eliminate any exchange rate risks from transactions resulting into increased trade and export competitiveness (Ruffin, 2015; UNIDO, 2018b) . Intra-industry trade describes trade in similar, but slightly differentiated products based on imperfect competition or trade in close substitutes demanded by consumers in different countries who may have unique tastes and preferences (Ekanayake, 2001). The significance of Intra-industry trade arises from its basic character of product differentiation and the fixed costs required producing any product. Intra-industry trade enhances the gains from trade through better exploitation of economies of scale by producing a greater variety and number of goods which also increases the acquisition of knowledge and technology thereby increasing export competitiveness. It also reduces the demand for protection since in any industry there both exports and imports making it difficult to

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gain consensus on protection (Ruffin, 2015). Intra-industry trade is divided in horizontal intra-industry trade and vertical intra-industry trade. Horizontal intra-industry trade refers to the simultaneous export and import of goods classified in the same sector and at the same stage of processing. This is mostly based on product differentiation. Goods are produced using similar technology and perform similar functions but differ in appearance and product characteristics that suit the desires of different types of consumers. Vertical intra-industry trade refers to the simultaneous export and import of goods classified in the same sector but at different stages of processing. This is mostly based on increased fragmentation of the production process each performed at different locations (Ruffin, 2015; UNIDO, 2018b). Therefore, vertical intra-industry trade focuses on the splitting up of the value chain with the production of parts, services and tasks dispersed and shipped to assembly lines in firms closer to markets (Nordås & Kim, 2013). UNCTAD, (2013) shows that intra- industry trade helps firms to enhance their competitiveness by exploiting economies of scale associated with having a larger market and it is the first step for building capacity for exporting globally.

Intra-industry trade, according to Amador & Cabral (2014) may be defined as the existence of simultaneous export and import within industries which could be associated with vertically differentiated products along quality ranges or horizontally differentiated products along product variety. Jambor & Carlos (2016) argue that intra-industry trade increases gains from trade through better exploitation of the economies of scale and increases variety of goods. Producing a greater variety of goods increases the general knowledge about technology, which greater knowledge implies smaller costs of knowledge accumulation through interaction which improves export competitiveness and readiness to integrate into the world economy. Rasekhi & Shojaee, (2012) showed that commodities with intra-industry trade have a high competitiveness compared with commodities with inter-industry trade and therefore, integrating into the world economy increases their export competitiveness. Kawecka-Wyrzykowska (2017) indicate the vertical intra-industry trade (VIIT) as the exchange of similar final goods with different qualities and prices which includes an exchange of both final and intermediate goods produced in the same industry whereby consumers rank alternative varieties according to product quality. The product vertically differentiated has more properties than another. The vertical product differentiation results from the supply-side where an improvement in product quality requires additional quality inputs which push up the unit price of the product. The choice of a particular product by the consumer is determined by the consumer's income due to the demand for quality and increasing price. Therefore, Vertical intra-industry trade (VIIT) is expected to be predominant between countries at different levels of development than between countries at the same level.

Deardorff, (2005) argues that for the development of VIIT, there is need for splitting a production process into separate parts which can be done in different locations since the products traded include both final and intermediate within the same industry, which explains the increase in world trade today. This requires elimination of barriers to trade and deregulation of capital flows. Baldwin (2011) shows that this can be accelerated by establishment of information technology which will push down communication costs and also reduced transactions costs. According to Jones *et al.*, (2002), the reduced costs in addition to technological progress results in decreased cost of coordinating the different service links which increases productivity. World

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trade is encouraged by technological improvements which lower the cost of coordinating various fragments of production process which could be outsourced among various countries. Therefore, when global value chains include finance, communication, transport and professional and other business services in adequate price-quality bundles and diverse varieties, the performance of firms improve. Since services enable firms to invest in new businesses and better technology to exploit economies of scale, concentrating production in limited locations, increase coordination between buyers and producers. This reduces the cost of coordination, increases total factor productivity resulting into increased export competitiveness of firms (Heuser & Mattoo, 2017). Jambor & Carlos, (2016) add that quality improvements foster VIIT whereby investments encourage quality of goods produced. They recommend that firms should invest in technological development to increase exports of high quality products and improve on their competitiveness. Amador & Cabral, (2014) argue that the more production is fragmented into different stages, the more intermediate goods circulate between countries, since the firms they are executed are distinct and often located in different countries. Heuser & Mattoo, (2017) shows that the strong increase in VIIT is largely due to expansion of back-and-forth transactions between vertically specialized production processes but not merely trade in quality differentiated goods. According to Nordås & Kim, (2013) this expansion in VIIT was induced by the international fragmentation of production. Ruffin (2015) argues that vertical intra-industry trade creates new business opportunities for firms able to shape consumer preferences and design the product the consumer wants early enough.

Thus, they indicate that new production and communication technologies enable firms to target Niche markets where design and marketing constitute an integrated feed-back loop. In addition, Nordås & Kim, (2013) argue that the services as part of the production systems are strategically the most important, distinguishing the firm from its competitors and it is the channel through which the firm engages with customers. Therefore, investing in services in vertical intra-industry trade is a substantial contributor to export competitiveness of firms (UNCTAD, 2013). In relation to the above, Lanz & Miroudot, (2011) indicate that intra-firm trade and vertical integration occur predominantly among countries hence the behavior and relationship between buyers and suppliers explain the pattern of international trade. Amador & Cabral (2014) conclude that recently, most production processes are vertically fragmented worldwide resulting in the acceleration of technological progress, a reduction in transport and communication costs and strong trade liberalization which increase export competitiveness of firms in foreign markets. Mulder & Sauvé, (2019) add that today about two-thirds of the world trade involves intermediate products that are located in different countries in the process of their production. Mulder & Sauvé, (2019) further argues that firms and countries that export a lot of manufactured products tend to have low domestic value-added in their exports. This could be because manufacturing is more exposed to fragmentation in the production process than agriculture with regard to interactions in the market. Amador & Cabral (2014) argue that in the recent increase in sophistication of final products, technological progress is a key factor that makes it possible for parts and components produced in factories across the world to combine efficiently in Global value chains. They add that this is possible due to the recent improvements in information, telecommunication and transportation technologies which are key in the coordination of various production activities and the management of the complex global value

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chains, whereby the major transformations in the production systems are based on technological success.

This is in line with Hummels *et al.,* (2018) who argue that the available technology in transportation, information and communication, determines what is traded internationally. In the same direction, Antor (2013) shows that the greater technological advances in telecommunication networks with the availability of high-band width with network infrastructure globally, have created new types of business services traded within different time zones. Inomata, (2017) argues that with the advances in transportation, information and communication technology, production processes are now divided into several production stages, each corresponding to a particular task or activity such as design, parts procurement, assembly, distribution among others. These activities are located and relocated across borders to areas where the activities are performed most efficiently. Therefore, according to Inomata (2017), the modern trade is not only movement of final products, but also the cross-border transfer of tasks or the value-added generated by the various tasks relocated across borders to exploit the cost differentials of production factors in various countries. Baimbill-johnson, (2017) reveals that the emergence of Global value chains has increased the integration of firms, countries or regions into global production networks which has accelerated economic growth. Increased connectivity through participation in global value chains has made countries and firms more economically interdependent. Connectivity can transform both conventional business models and buyers and sellers interact in the market. Soobramanien & Worrall, (2017) indicate that new trade opportunities are emerging through the reduction of a variety of trade barriers to networks which include; minimum scale economies in production, small market size and underdeveloped national systems of innovation. They add that with vertical production fragmentation, remote locations could be open to new trade opportunities that enable the firms integrate easily within global hubs of economic activity in different regions of production establishments whereby they can integrate in various products and tasks. Therefore, participation in global value chains open channels for technological learning, process improvement and product upgrading. However, Soobramanien & Worrall, (2017) argue that there is significant barriers to upgrading to global value chains that could be due to geographical separation of high value-added functions such as design and marketing from routine functions of manufacturing creating imbalance in upgrading. Elms (2013) recommend that to focus on the global value chains industrial systematic upgrading, indigenous innovations that leverage the capabilities and knowledge-intensive intermediate inputs in the global supply base should be boosted. This could be because the GVCs fragmented production systems are spatially across vertical business functions where the assemblers and suppliers of intermediate inputs may never be exposed to higher value-added functions hence, reducing the functioning of the global value chains. The focus therefore, should be to stimulate the increased firm level networking and new forms of private-sector development to enhance export competitiveness of firms. Moreover, global value chains have been found to be multifaceted since they have different characteristics and dynamics which offer different opportunities for economic development, technological learning and industrial upgrading hence, a key factor in increasing export competitiveness of firms (Soobramanien & Worrall, 2017).

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Ponte & Sturgeon, (2014) argue that there exist different types of global value chains which vary according to end markets, the technical features of transformation, the capabilities in industry-specific and geographically specific supply base and the norms of business systems in the home country of lead firms. On their part, Sturgeon & Memedovic (2010) show that the global value chains vary according to the prevailing industries and value chain segments. This could be due to the technology employed in the production of the product that may dictate the way in which different stages of production fit together (Venables, 2011). Soobramanien & Worrall, (2017) argue that the global fragmentation as reflected in the global value chains reduce vulnerability of less developed countries as they accommodate specialization in narrow business functions removing the need for the less developed countries develop all aspects of an industry. By combining specialization with global market access, global value chains facilitate the linkage of less developed countries to demanding external buyers hence, exploit economies of scale. Though some of activities within the value chains require substantial scale of high-volume assembly of standardized products to achieve cost competitiveness of firms. Contrary to this, Soobramanien & Worrall, (2017)argue that market size determines the location of production in many ways giving developed countries an advantage in regard to instituting laws and regulations in relation to investment attraction, local content and joint venture requirements. They further show that distance affects market size by impacting on market accessibility and entry. These influence the global value chains by impacting on costs and time required to get goods to their next segment of production and to receive inputs from the previous segments. This explains the necessity of regional integration and further shows why most of the production networks are mainly at regional level rather than global level. This study is aimed at contributing empirical knowledge on economic analysis of value chain of firms in promoting export competitiveness of firms through increased productivity in developing countries.

3. Methodology

3.1 Research design and data source

This study examined the status in EAC trade flows, and calculated the Grubel-Lloyd Index of intra-industry trade for total trade of each country between 2004 and 2022. The Intra-Industry Trade (IIT) refers to the simultaneous import and export of goods in the same industry. The products being classified in the same sector identify similarity in this respect. Such trade is very important for economic growth because it stimulates innovations and exploits economies of scale to enhance productivity and export competitiveness of firms (Ruffin, 2015). This normally occurs among countries with similar economic structures and the level of development that are geographically close. The IIT Index is very useful when considering the nature of the trade relationship between any pairs of countries. The index used in this study is based on the Grubel-Lloyd Index for the commodity group transactions based on the following formula;

3.2 Measurement of variables

Competitiveness is a broad concept and there is no agreement on how to measure it precisely (Latruffe, 2010). However, export competitiveness was mainly measured using adapted measurement dimensions, items and scales in line with this dependent variable's components as

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reflected in the conceptual framework used in other studies (Utkulu & Seymen, 2004). The revealed comparative advantage index (RCAI) based on Balassa (1965) was used to measure the relative ability of a country to produce a good compared to its trading partner. This was to capture the level of specialization in international trade (Utkulu & Seymen, 2004). Intra-industry trade was measured based on the Grubel-Lloyd index to evaluate the simultaneous import and export of products of the same industry in line (Ruffin, 2015). Trade concentration was measured based on the Hirschmann-Herfindahl index to assess the degree of concentration or diversification of a country`s export as applied by (Makonnen, 2012).

3.3 Analysis

The index used in this study is based on the Grubel-Lloyd Index for the commodity group transactions based on the following formula;

Intra-industry Trade (IIT)

$$GL_{ij}^{k} = 1 - \left(\frac{| x_{ij}^{k} - m_{ij}^{k} |}{x_{ij}^{k} + m_{ij}^{k}} \right) \quad \text{..... (13)}$$

If the country only imports or only exports goods or services within the same sector, such that there is no intra-industry trade, the second term on the right-hand side of equation is equal to one, such that the whole expression reduces to zero. Similarly, if the export value is exactly equal to the import value (export = import), the second term on the right-hand side of equation is equal to zero, such that the whole expression reduces to one. The index therefore takes a minimum value of 0 when there are no products in the same class that are both imported and exported (inter-industry trade), and the maximum value of 100 when all trade is intra-industry. The results in tables 5.7 to table 5.11 show that i

4.0 Results

Burundi

There is high intra industry trade in Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere ...between Burundi and the EAC in 2005,2015 and 2021.Other years show variability which indicates fluctuating trade balance. Coffee, tea, maté and spices show high intra industry trade in 2015 and increasing trade in the recent years (2020-2022). Cereals have high intra industry trade in 2015, low trade in most other years indicating imbalanced trade. Intra industry trade is consistently high across multiple years. Ores, slag and ash, mostly no intra trade except its high in 2015 and 2019.

There is high intra trade in 2015 and minimal trade in recent years in the trade of pharmaceutical products, Paper and paperboard; articles of paper pulp, of paper or of paperboard, Articles of apparel and clothing accessories, knitted or crocheted and Footwear, gaiters and the like; parts of such articles and Articles of iron or steel.

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Trade in Plastics and articles thereof show high intra trade in 2014-2015with fluctuating trade balance in other years. There is fluctuating intra industry trade in Ceramic products, with high in 2006 and 2017.

Trade in Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ...shows consistently high intra trade in a few specific years. Trade in Vehicles other than railway or tramway rolling stock, and parts and accessories thereof and trade in Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; ...show consistently high intra trade in across multiple years indicating strong intra industry trade.

Table 1- Burundi

Product code	Product Name	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
'04	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere ...	0.0%	99.3%	0.8%	12.3%	4.9%	0.0%	2.0%	3.0%	0.0%	4.6%	7.5%	100.0%	0.0%	0.0%	33.3%	21.5%	16.1%	93.6%	6.1%
'09	Coffee, tea, maté and spices	1.3%	0.3%	1.1%	0.4%	0.5%	23.9%	0.2%	0.1%	5.1%	1.2%	0.1%	100.0%	3.7%	11.3%	15.2%	7.2%	21.4%	20.9%	44.2%
'10	Cereals	2.8%	0.0%	6.0%	7.1%	30.8%	75.6%	18.2%	2.5%	0.0%	0.0%	3.6%	100.0%	0.0%	0.0%	3.3%	0.2%	0.1%	0.0%	0.0%
'22	Beverages, spirits and vinegar	37.6%	33.1%	28.4%	28.9%	55.0%	85.3%	70.6%	85.6%	0.1%	88.2%	18.9%	100.0%	41.9%	34.5%	51.1%	73.7%	70.1%	94.8%	79.0%
'26	Ores, slag and ash	0.0%	0.0%	0.0%	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	0.0%	100.0%	16.8%	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%
'30	Pharmaceutical products	44.3%	21.5%	26.6%	29.0%	8.4%	0.5%	3.0%	7.7%	0.0%	0.2%	0.5%	100.0%	0.0%	0.4%	0.0%	0.1%	0.0%	0.0%	0.0%
'39	Plastics and articles thereof	35.3%	23.8%	0.0%	10.6%	30.9%	15.0%	5.0%	14.3%	11.6%	2.8%	78.1%	100.0%	54.1%	59.2%	26.0%	11.1%	43.1%	38.2%	36.8%
'48	Paper and paperboard; articles of paper pulp, of paper or of paperboard	1.7%	2.3%	5.3%	25.3%	42.5%	1.4%	22.4%	14.0%	0.6%	5.6%	6.3%	100.0%	1.5%	0.2%	1.3%	0.7%	0.1%	0.2%	0.2%
'61	Articles of apparel and clothing accessories, knitted or crocheted	0.0%	0.0%	0.0%	3.8%	0.0%	0.0%	3.7%	0.0%	0.2%	0.0%	59.9%	100.0%	0.5%	0.0%	1.8%	4.8%	3.5%	1.6%	19.8%
'64	Footwear, gaiters and the like; parts of such articles	0.0%	0.0%	0.0%	3.6%	0.3%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	100.0%	0.1%	0.4%	0.5%	0.2%	0.1%	0.1%	0.8%
'69	Ceramic products	0.0%	27.9%	80.0%	0.0%	0.8%	12.4%	1.0%	27.5%	0.0%	0.0%	3.7%	0.0%	6.0%	7.2%	8.5%	6.5%	2.5%	1.4%	1.4%
'71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ...	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	100.0%	1.0%	0.0%	2.7%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
'73	Articles of iron or steel	0.0%	1.4%	4.9%	9.5%	0.2%	0.0%	3.8%	9.3%	4.7%	16.6%	12.5%	0.0%	8.0%	8.1%	6.2%	6.2%	6.0%	13.6%	2.5%
'87	Vehicles other than railway or tramway rolling stock, and parts and accessories thereof	0.0%	79.1%	18.9%	42.3%	57.7%	16.2%	95.2%	53.2%	7.3%	44.9%	75.4%	79.4%	95.0%	62.8%	92.3%	34.8%	65.0%	81.1%	92.3%
'94	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; ...	0.0%	12.4%	78.4%	18.8%	9.0%	91.4%	8.6%	3.3%	3.8%	13.3%	50.2%	100.0%	56.7%	22.8%	15.8%	24.0%	88.9%	75.1%	57.0%

Uganda

There is no intra industry trade in Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere .... Trade in Coffee, tea, maté and spices shows generally low intra trade with occasional peaks in 2014 and 2015. There is intra trade in Cereals but it fluctuates with some high and low years. Trade in Beverages, spirits and vinegar shows generally high intra trade especially in 2014 and 2015 though declining in the recent years. Trade in Ores, slag and ash keeps fluctuating with very high intra trade in 2004 and 2006 and low intra trade in the recent years. Intra trade in pharmaceutical products has been increasing overtime, reaching high levels in 2016 and 2021. There is increasing intra trade in Plastics and articles thereof, very high in the recent years of 2021 and 2022. Paper and paperboard; articles of paper pulp, of paper or of paperboard shows consistently high intra trade especially in 2021.

Articles of apparel and clothing accessories, knitted or crocheted shows fluctuating intra trade with high intra trade in 2022. There intra trade in Footwear, gaiters and the like; parts of such articles with higher intra trade in 2007 and 2021. There is high intra trade in Ceramic products in most of the years.

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Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ...shows intra trade in some years with low intra trade in the recent years. Articles of iron or steel, Vehicles other than railway or tramway rolling stock, and parts and accessories thereof and Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; ... show intra trade.

Table 2 -uganda

Product Code	Product Name	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
04	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere ...	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
'09	Coffee, tea, maté and spices	3.6%	7.1%	7.8%	8.8%	12.6%	8.8%	10.9%	11.3%	9.4%	7.5%	37.0%	39.5%	26.4%	38.5%	21.0%	30.7%	35.1%	7.4%	8.2%
'10	Cereals	49.4%	75.4%	15.7%	41.4%	66.5%	48.1%	41.4%	57.5%	40.2%	18.8%	24.3%	12.8%	18.7%	19.8%	30.2%	44.1%	89.6%	35.3%	65.4%
'22	Beverages, spirits and vinegar	51.1%	58.7%	29.4%	36.9%	39.7%	33.8%	48.8%	37.7%	66.7%	94.6%	99.1%	82.4%	88.3%	74.0%	50.2%	40.2%	27.0%	24.2%	21.3%
'26	Ores, slag and ash	100.0%	33.3%	100.0%	19.5%	50.0%	71.2%	11.7%	2.0%	68.8%	5.6%	62.2%	40.0%	8.8%	51.2%	26.1%	3.9%	83.6%	0.4%	0.5%
'30	Pharmaceutical products	16.8%	12.7%	11.8%	13.3%	28.0%	20.5%	26.5%	19.4%	39.9%	51.3%	57.6%	56.4%	80.0%	71.7%	67.7%	60.2%	80.0%	85.6%	76.2%
'39	Plastics and articles thereof	38.0%	41.5%	33.9%	34.3%	43.5%	52.1%	46.3%	53.9%	65.5%	84.3%	79.2%	82.5%	74.4%	81.3%	86.7%	91.3%	79.5%	99.2%	99.6%
'48	Paper and paperboard; articles of paper pulp, of paper or of paperboard	15.9%	25.7%	16.3%	33.7%	30.6%	48.8%	61.7%	54.2%	71.0%	81.0%	96.9%	78.6%	96.4%	86.3%	84.2%	80.5%	91.7%	99.4%	88.5%
'61	Articles of apparel and clothing accessories, knitted or crocheted	1.4%	3.8%	59.5%	41.2%	15.8%	31.3%	63.5%	26.0%	44.4%	34.8%	44.0%	80.6%	88.9%	79.7%	75.4%	87.4%	48.1%	46.7%	91.7%
'64	Footwear, gaiters and the like; parts of such articles	9.7%	22.8%	11.5%	82.6%	61.1%	52.6%	62.2%	79.3%	61.3%	57.2%	73.1%	51.4%	48.3%	42.5%	50.9%	54.3%	37.9%	80.9%	66.9%
'69	Ceramic products	13.1%	3.7%	12.9%	52.1%	26.0%	34.9%	82.6%	58.4%	48.6%	87.8%	87.9%	93.6%	80.3%	31.3%	69.3%	95.7%	82.1%	70.9%	55.0%
'71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ...	72.7%	66.7%	62.9%	81.3%	54.1%	63.2%	16.3%	5.0%	11.4%	28.6%	27.5%	35.6%	17.1%	81.8%	0.0%	0.1%	0.0%	0.0%	1.4%
'73	Articles of iron or steel	74.7%	66.8%	77.2%	69.8%	48.7%	49.9%	60.3%	65.7%	62.3%	58.0%	59.5%	65.5%	51.9%	49.8%	42.2%	52.9%	49.4%	41.9%	34.6%
'87	Vehicles other than railway or tramway rolling stock, and parts and accessories thereof	83.5%	80.2%	85.5%	83.9%	99.2%	84.0%	69.8%	85.8%	63.4%	64.3%	68.7%	67.7%	59.7%	73.1%	73.4%	66.8%	45.7%	39.1%	36.9%
'94	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; ...	99.6%	64.7%	96.1%	95.6%	63.7%	73.8%	92.6%	69.8%	52.6%	42.3%	83.9%	75.1%	45.9%	28.8%	48.6%	71.1%	61.4%	21.7%	40.5%
Grand Total		97.8%	96.5%	99.6%	99.3%	94.8%	93.9%	88.0%	99.4%	84.8%	70.6%	76.2%	69.2%	63.4%	59.0%	96.8%	63.0%	51.8%	65.5%	74.3%

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Kenya

Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere …shows a significant increase in 2010 with fluctuations in recent years. Intra trade in Coffee, tea, maté and spices increases overtime especially in the recent years. Cereals show high intra trade with notable fluctuations. Beverages, spirits and vinegar Ores, slag and ash and show moderate intra trade with some years.

There is low intra trade in pharmaceutical products, Plastics and articles thereof and Footwear, gaiters and the like; parts of such articles, Articles of iron or steel, Vehicles other than railway or tramway rolling stock, and parts and accessories thereof and Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; ....

Trade in Paper and paperboard; articles of paper pulp, of paper or of paperboard Articles of apparel and clothing accessories, knitted or crocheted and Ceramic products consistently high. Intra trade in Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ... is low with high intra trade in 2017 -2018.

Table 3 -kenya

Product code	Product name	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
'04	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere ...	0.00 %	4.42 %	8.31 %	9.23 %	17.62 %	43.72 %	87.77 %	86.57 %	84.18 %	74.64 %	62.23 %	28.73 %	26.92 %	6.01 %	3.40 %	2.93 %	4.69 %	7.22 %	8.11 %
'09	Coffee, tea, maté and spices	0.00 %	8.19 %	7.68 %	10.86 %	4.44 %	18.04 %	80.47 %	89.46 %	96.82 %	81.44 %	93.81 %	86.36 %	98.28 %	77.13 %	75.95 %	98.10 %	73.11 %	81.26 %	85.10 %
'10	Cereals	0.00 %	93.75 %	84.92 %	51.02 %	83.53 %	88.23 %	76.06 %	45.95 %	34.65 %	82.67 %	37.43 %	61.59 %	92.83 %	65.97 %	48.89 %	75.67 %	80.78 %	25.03 %	8.50 %
'22	Beverages, spirits and vinegar	0.00 %	40.49 %	17.68 %	13.87 %	18.71 %	11.88 %	17.27 %	12.53 %	19.20 %	13.52 %	19.95 %	11.91 %	17.83 %	36.25 %	32.25 %	53.78 %	74.12 %	76.22 %	64.22 %
'26	Ores, slag and ash	0.00 %	71.43 %	11.20 %	0.00 %	9.25 %	68.18 %	17.27 %	42.65 %	15.57 %	20.85 %	56.80 %	19.98 %	35.29 %	38.80 %	63.15 %	29.61 %	90.06 %	81.15 %	56.82 %
'30	Pharmaceutical products	0.00 %	1.55 %	0.70 %	0.66 %	1.02 %	1.71 %	3.05 %	1.15 %	1.07 %	1.36%	1.52 %	3.05 %	1.47 %	5.72 %	6.47 %	9.87 %	12.85 %	8.09 %	10.09 %
'39	Plastics and articles thereof	0.00 %	10.99 %	6.16 %	2.87 %	1.29 %	1.10 %	1.66 %	2.52 %	6.43 %	2.68%	1.77 %	1.61 %	1.87 %	4.84 %	3.64 %	4.41 %	4.74 %	3.56 %	4.64 %
'48	Paper and paperboard; articles of paper pulp, of paper or of paperboard	0.00 %	12.26 %	34.67 %	28.20 %	51.81 %	64.46 %	63.29 %	66.87 %	62.22 %	65.34 %	70.73 %	76.47 %	79.55 %	87.21 %	82.61 %	76.42 %	68.52 %	95.08 %	74.13 %
'61	Articles of apparel and clothing accessories, knitted or crocheted	0.00 %	8.76 %	8.68 %	35.35 %	6.05 %	3.92 %	7.19 %	17.28 %	15.76 %	29.21 %	22.84 %	29.23 %	65.95 %	99.11 %	97.01 %	98.46 %	65.37 %	48.47 %	74.87 %
'64	Footwear, gaiters and the like; parts of such articles	0.00 %	0.45 %	1.41 %	0.33 %	0.16 %	0.03 %	0.00 %	0.00 %	0.03 %	0.06%	0.10 %	0.02 %	0.00 %	0.35 %	0.07 %	0.04 %	0.38 %	0.82 %	0.71 %
'69	Ceramic products	0.00 %	2.27 %	0.23 %	4.44 %	5.15 %	1.51 %	2.85 %	2.99 %	0.87 %	0.29%	1.66 %	2.42 %	1.04 %	85.08 %	60.90 %	70.50 %	56.10 %	44.08 %	70.24 %
'71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ...	0.00 %	0.00 %	0.00 %	0.00 %	0.00 %	0.00 %	6.78 %	3.42 %	0.00 %	100.00 %	0.00 %	0.00 %	0.00 %	93.88 %	81.48 %	0.00 %	27.91 %	8.58 %	0.00 %

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'73	Articles of iron or steel	0.00 %	0.58 %	1.56 %	5.42 %	10.72 %	12.81 %	19.68 %	23.56 %	18.48 %	18.55 %	9.57 %	13.61 %	11.74 %	13.00 %	17.36 %	16.98 %	21.30 %	12.08 %	4.10 %
'87	Vehicles other than railway or tramway rolling stock, and parts and accessories thereof	0.00 %	7.32 %	3.29 %	3.72 %	1.23 %	0.31 %	1.12 %	2.74 %	4.50 %	2.51%	2.97 %	2.09 %	4.17 %	6.34 %	29.09 %	4.75 %	3.77 %	4.18 %	3.16 %
'94	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; ...	0.00 %	6.12 %	7.08 %	13.67 %	3.91 %	0.79 %	6.25 %	20.69 %	4.31 %	3.80%	1.43 %	1.21 %	1.50 %	7.55 %	10.75 %	32.90 %	6.79 %	9.36 %	5.20 %

Rwanda

There is high intra trade in Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere ..., Cereals and Beverages, spirits and vinegar.

There is low intra trade in Coffee, tea, maté and spices, Ores, slag and ash, pharmaceutical products, Plastics and articles thereof, Paper and paperboard; articles of paper pulp, of paper or of paperboard, Articles of apparel and clothing accessories, knitted or crocheted, Ceramic products and Articles of iron or steel. Trade in Footwear, gaiters and the like; parts of such articles, Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; ..., Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ...and Vehicles other than railway or tramway rolling stock, and parts and accessories thereof fluctuates.

Table 4 –Rwanda

Product code	Product Name	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
'04	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere ...	82.96 %	60.74 %	90.00 %	1.94 %	0.75 %	0.31 %	0.84 %	12.47 %	53.33 %	91.16 %	75.86 %	82.95 %	95.16 %	92.39 %	71.19 %	74.69 %	45.46 %	33.48 %	77.84%
'09	Coffee, tea, maté and spices	0.04%	0.24%	1.91 %	2.12 %	2.89 %	0.51 %	1.84 %	0.98 %	1.09 %	3.70 %	6.19 %	12.29 %	19.81 %	53.81 %	74.82 %	63.58 %	25.30 %	63.67 %	9.61%
'10	Cereals	2.26%	1.08%	7.46 %	17.49 %	4.03 %	6.29 %	2.45 %	3.14 %	81.47 %	98.40 %	93.83 %	94.06 %	98.99 %	97.75 %	77.92 %	91.26 %	66.14 %	62.91 %	1.67%
'22	Beverages, spirits and vinegar	70.49 %	36.86 %	10.24 %	97.38 %	16.01 %	70.45 %	77.02 %	74.89 %	24.54 %	55.35 %	37.09 %	36.27 %	48.72 %	52.27 %	54.48 %	61.29 %	97.15 %	76.97 %	1.76%
'26	Ores, slag and ash	0.00%	37.89 %	34.31 %	17.76 %	5.76 %	4.56 %	1.78 %	28.57 %	1.91 %	0.00 %	14.20 %	0.00 %	1.40 %	0.00 %	0.00 %	17.26 %	0.00 %	5.18 %	0.00%
'30	Pharmaceutical products	4.06%	10.75 %	5.20 %	9.12 %	8.48 %	2.80 %	2.80 %	4.14 %	6.72 %	7.67 %	2.06 %	5.37 %	4.69 %	7.72 %	2.55 %	6.49 %	13.26 %	11.01 %	3.97%
'39	Plastics and articles thereof	1.87%	2.32%	5.80 %	12.53 %	17.62 %	12.38 %	13.60 %	16.68 %	33.58 %	46.46 %	22.37 %	13.71 %	12.18 %	20.61 %	24.97 %	27.01 %	39.06 %	90.95 %	24.82%
'48	Paper and paperboard ; articles of paper pulp, of paper or of paperboard	3.02%	0.98%	4.34 %	1.49 %	0.33 %	0.91 %	0.99 %	0.52 %	1.07 %	16.02 %	22.63 %	15.75 %	29.62 %	28.77 %	33.61 %	40.89 %	53.30 %	51.10 %	10.64%

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'61	Articles of apparel and clothing accessories, knitted or crocheted	0.00%	0.00%	0.00 %	3.40 %	1.79 %	0.00 %	4.61 %	3.05 %	0.00 %	9.97 %	25.38 %	31.65 %	20.87 %	8.64 %	28.30 %	64.57 %	77.69 %	74.09 %	31.09%
'64	Footwear, gaiters and the like; parts of such articles	0.78%	1.15%	4.73 %	30.08 %	31.57 %	53.56 %	50.27 %	41.63 %	15.18 %	36.41 %	24.97 %	28.54 %	52.59 %	47.84 %	41.92 %	53.11 %	94.83 %	99.47 %	60.47%
'69	Ceramic products	0.00%	0.00%	2.48 %	1.24 %	3.97 %	6.97 %	14.97 %	37.00 %	31.58 %	27.15 %	40.58 %	31.56 %	50.00 %	18.91 %	23.54 %	17.69 %	30.37 %	30.37 %	3.36%
'71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ...	100.00%	100.00%	0.00 %	0.00 %	0.00 %	78.40 %	0.00 %	0.00 %	0.00 %	40.00 %	32.91 %	66.67 %	40.00 %	66.67 %	80.95 %	0.05 %	0.01 %	0.02 %	0.00%
'73	Articles of iron or steel	12.15 %	10.31 %	3.74 %	8.80 %	3.17 %	6.30 %	11.60 %	16.47 %	9.99 %	75.44 %	7.31 %	7.10 %	12.23 %	6.78 %	22.04 %	28.26 %	35.15 %	42.71 %	6.52%
'87	Vehicles other than railway or tramway rolling stock, and parts and accessories thereof	47.88 %	63.58 %	45.04 %	47.52 %	21.07 %	63.77 %	91.06 %	50.90 %	34.75 %	39.44 %	25.06 %	28.11 %	55.35 %	59.80 %	21.95 %	12.83 %	12.64 %	18.95 %	36.34%
'94	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; ...	7.12%	8.00%	1.85 %	2.89 %	13.15 %	18.45 %	19.46 %	12.82 %	49.97 %	87.61 %	81.61 %	35.59 %	55.99 %	99.59 %	69.39 %	52.95 %	41.34 %	37.68 %	99.58%

Tanzania

Intra trade in Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere ..., Coffee, tea, maté and spices, Beverages, spirits and vinegar, Footwear, gaiters and the like; parts of such articles, Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ..., Vehicles other than railway or tramway rolling stock, and parts and accessories thereof and Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; ...fluctuates with both high and low intra trade.

There is high intra trade in Cereals and Beverages, spirits and vinegar. The results also indicate low intra trade in Ores, slag and ash, pharmaceutical products, Paper and paperboard; articles of paper pulp, of paper or of paperboard, Ceramic products and Articles of iron or steel. There an increase in intra trade in Articles of apparel and clothing accessories, knitted or crocheted.

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Table 5- Tanzania

Product code	Product name	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
'04	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere ...	82.96%	60.74%	90.00%	1.94%	0.75%	0.31%	0.84%	12.47%	53.33%	91.16%	75.86%	82.95%	95.16%	92.39%	71.19%	74.69%	45.46%	33.48%	77.84%
'09	Coffee, tea, maté and spices	0.04%	0.24%	1.91%	2.12%	2.89%	0.51%	1.84%	0.98%	1.09%	3.70%	6.19%	12.29%	19.81%	53.81%	74.82%	63.58%	25.30%	63.67%	9.61%
'10	Cereals	2.26%	1.08%	7.46%	17.49%	4.03%	6.29%	2.45%	3.14%	81.47%	98.40%	93.83%	94.06%	98.99%	97.75%	77.92%	91.26%	66.14%	62.91%	1.67%
'22	Beverages, spirits and vinegar	70.49%	36.86%	10.24%	97.38%	16.01%	70.45%	77.02%	74.89%	24.54%	55.35%	37.09%	36.27%	48.72%	52.27%	54.48%	61.29%	97.15%	76.97%	1.76%
'26	Ores, slag and ash	0.00%	37.89%	34.31%	17.76%	5.76%	4.56%	1.78%	28.57%	1.91%	0.00%	14.20%	0.00%	1.40%	0.00%	0.00%	17.26%	0.00%	5.18%	0.00%
'30	Pharmaceutical products	4.06%	10.75%	5.20%	9.12%	8.48%	2.80%	2.80%	4.14%	6.72%	7.67%	2.06%	5.37%	4.69%	7.72%	2.55%	6.49%	13.26%	11.01%	3.97%
'39	Plastics and articles thereof	1.87%	2.32%	5.80%	12.53%	17.62%	12.38%	13.60%	16.68%	33.58%	46.46%	22.37%	13.71%	12.18%	20.61%	24.97%	27.01%	39.06%	90.95%	24.82%
'48	Paper and paperboard; articles of paper pulp, of paper or of paperboard	3.02%	0.98%	4.34%	1.49%	0.33%	0.91%	0.99%	0.52%	1.07%	16.02%	22.63%	15.75%	29.62%	28.77%	33.61%	40.89%	53.30%	51.10%	10.64%
'61	Articles of apparel and clothing accessories, knitted or crocheted	0.00%	0.00%	0.00%	3.40%	1.79%	0.00%	4.61%	3.05%	0.00%	9.97%	25.38%	31.65%	20.87%	8.64%	28.30%	64.57%	77.69%	74.09%	31.09%
'64	Footwear, gaiters and the like; parts of such articles	0.78%	1.15%	4.73%	30.08%	31.57%	53.56%	50.27%	41.63%	15.18%	36.41%	24.97%	28.54%	52.59%	47.84%	41.92%	53.11%	94.83%	99.47%	60.47%
'69	Ceramic products	0.00%	0.00%	2.48%	1.24%	3.97%	6.97%	14.97%	37.00%	31.58%	27.15%	40.58%	31.56%	50.00%	18.91%	23.54%	17.69%	30.37%	30.37%	3.36%
'71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ...	100.00%	100.00%	0.00%	0.00%	0.00%	78.40%	0.00%	0.00%	0.00%	40.00%	32.91%	66.67%	40.00%	66.67%	80.95%	0.05%	0.01%	0.02%	0.00%
'73	Articles of iron or steel	12.15%	10.31%	3.74%	8.80%	3.17%	6.30%	11.60%	16.47%	9.99%	75.44%	7.31%	7.10%	12.23%	6.78%	22.04%	28.26%	35.15%	42.71%	6.52%
'87	Vehicles other than railway or tramway rolling stock, and parts and accessories thereof	47.88%	63.58%	45.04%	47.52%	21.07%	63.77%	91.06%	50.90%	34.75%	39.44%	25.06%	28.11%	55.35%	59.80%	21.95%	12.83%	12.64%	18.95%	36.34%
'94	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; ...	7.12%	8.00%	1.85%	2.89%	13.15%	18.45%	19.46%	12.82%	49.97%	87.61%	81.61%	35.59%	55.99%	99.59%	69.39%	52.95%	41.34%	37.68%	99.58%

5.0 Discussion

5.1 Intra-industry trade indices

The results show that all countries have a very low intra-industry value in Coffee, tea, maté and spices yet all the EAC have high Comparative Advantage in Coffee, tea, maté and spices. This is because large amounts of Coffee, tea, maté and spices are exported to other markets but to a small extent traded within EAC. This is consistent with UNCTAD (2018) which argue that the role of intra-regional trade in EAC has not improved with the creation of the Customs Union (CU) and Common market (CM) as trade is still dominated by countries outside the region such as Asian and European countries. EAC Trade and investment report (2018) indicates that a large portion of trade between EAC and the rest of the world consist of primary products largely tea, coffee, cocoa, minerals and horticultural products. This could be due to production of identical and limited manufactured goods and the use of different currencies. The low intra-EAC trade could reflect the increased informal cross-border trade which is unrecorded, poor infrastructure, increased non-tariff barriers (NTBs) and the cumbersome administrative procedure in the EAC. This could also imply that the EAC trade in these products takes place outside the region. However, there is an increase in the share of intra-industry trade in some product groups, reflecting a shift from inter-industry trade to intra-industry trade over the period under study in products such as Cereals, Plastics and articles thereof, Paper and paperboard; articles of paper pulp, of paper or of paperboard, Beverages, spirits and vinegar, Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings, Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere, Articles of apparel and clothing accessories, knitted or crocheted and Plastics and articles thereof for different countries. The increase in intra-industry trade could be attributed to favorable weather conditions in the region over the years which encouraged increased production of agricultural products and elimination of restrictive tariffs and non-tariff barriers.

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This is consistent with the EAC Industrial Competitiveness Report (2017) which emphasized the need for increased manufacturing value added and manufacturing trade growth as a mechanism for increased intra-industry trade in the region. This is supported by the empirical literature for instance, Jambor & Carlos (2016) argue that intra-industry trade increases gains from trade through better exploitation of the economies of scale and increases variety of goods. And suggest that producing a greater variety of goods increases the general knowledge about technology, which greater knowledge implies lesser costs of knowledge accumulation through interaction which improves export competitiveness and readiness to integrate into the world economy. Rasekhi & Shojaee, (2012) shows that commodities with intra-industry trade have a high competitiveness compared to commodities with inter-industry trade and emphasize that integrating into the world economy increases their export competitiveness. At the same time there is a decrease in intra-industry trade over the years for some product group for different countries. For example, there is a decrease for almost all products in Kenya shifting from intra-industry trade to inter-industry trade. The low intra-industry trade could be attributed to inadequate value addition production and lack of modernization of agriculture which could have affected the price of the goods traded. This lends support to the new-new trade theory (Melitz, 2003; Ciuriak, Lapham & Wolfe, 2011) which makes a tight link between international trade and productivity implying that firms entering export markets tend to adopt newer and better production technologies and adapt quickly to market changes, which increase the firm productivity. In addition, the unfavorable political climate and restrictive trade regimes that constrain the access to regional markets. For example, sugar from Uganda to Kenya and Tanzania, powdered milk from Uganda to Kenya, poultry from Kenya to Tanzania, maize from Uganda to Kenya, Poultry products from Uganda to Kenya and the closure of the border between Rwanda and Uganda among others. The low Intra-industry trade could also be caused by currency value disparities among member states since depreciation of a country`s currency in terms of other currencies, may have a significant effect on Intra-industry trade. Due to the outbreak of COVID-19, the East Africa Community (EAC) partner states adopted different controls measures and regulations to limit the spread of the disease. These affected the transportation and markets of different commodities in the region, thereby reducing the intra-EAC trade resulting in the reduction of the export competitiveness of firms participating in trade. The Pandemic disrupted the trade of agricultural products since farmers could not organize the markets. The containment measures of social distancing and quarantine reduced the demand and disrupted supply chains for many businesses leading to their closure. This was due to limited connectivity and digital skills among small businesses and farmers which made shifting operations to online platforms very challenging. In addition, given that the EAC partner states have market access to the EU, US and Asia mostly China, the COVID-19 restriction put in place to contain the spread, have negatively affected the supply chains, commodity prices and cross-border investment and trade flows, reducing the export competitiveness of firms in UAC. Trade flows were significantly affected by EAC's interconnectedness with trade partners globally. The findings in this study also render support to the new trade theory (Krugman, 1979) cited by Markusen, (2007) who suggest that intra-industry trade creates competition among firms which reduces the costs of trading and increases the availability of services to both importer and exporters through vertical intra-industry trade.

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6.0 Conclusion and implications

This study was conducted to investigate the effect of intra-industry trade on the sustainability of export competitiveness of firms in the East African Community (EAC). This study was motivated by the low level of export competitiveness of export firms in EAC partner states, especially for manufactured goods due to the low levels of product transformation and poor or lack of value addition. Also, there is scanty literature on improving exports in import-oriented countries like those in the EAC since current studies have been conducted in export-minded countries such as those in Europe (Puertas et al., 2014). To achieve the purpose of the study, one research question was evaluated. The study adopted the Grubel-Lloyd Index of intra-industry trade index model. The researcher computed the major trade outcome indicator of competitiveness on the data from 2004 to 2022. The study based on the top ten exports for each country to assess the sustainability of export competitiveness of a country`s overall basket of products as well as the specific sectors. Data was obtained from World Bank International Trade Centre (ITC) and World Bank development indicators. The study provides evidence that intra-industry trade has an impact on the sustainability of export competitiveness of firms in the EAC.

This study contributes to academic research by providing empirical evidence to support the theories that are relevant to explain export competitiveness, but also it has implications for a larger body of knowledge which could benefit other related studies. While the New Trade Theory emphasizes increasing economies of scale, increasing return to scale, product differentiation and consumer preference for variety. This study develops a model that explains the effect of Intra-industry trade on the sustainability of export competitiveness. The study makes a contribution to the growing body of literature and debates on the concept of competitiveness by bringing out how technological innovation interacts and contributes to the New-New Trade Theory by reducing transaction costs, increasing productivity and product diversity, and resulting in increased sustainability of export competitiveness. These interactions link with global markets to increase productivity and export competitiveness. For the first time, this study has explained the complex dynamic interactions intra-industry trade process in the EAC using quantitative data and that this interaction affects the sustainability of export competitiveness.

The findings of this study have several managerial and policy implications for the exporters and their associations, export firms, transporters, government agencies and the governments of partner states. For policy purposes, these results imply that trade between EAC countries and other trade partner’s needs to be enhanced through structural transformation by improvement on infrastructural development both in the import and export countries to improve the export competitiveness. In addition, the EAC partner states need to take deeper reforms as regards structural transformation to enable firms to integrate into the Global Value Chains (GVCs) to enable them to increase their productivity by reviewing the existing policies to match the changes in the market. The EAC partner states need to embrace deep integration by removing the behind-the-border trade barriers in addition to other trade restrictions, to create a common economic space among member states. This helps the implementation of common and harmonized economic policies and regulations since it involves mutual recognition agreements where countries agree to recognize one another’s conformity assessments.

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The EAC partner states need to enforce the reduction of non-Tariff barriers (NTBs) by reducing the number of checkpoints, weighbridges, documentary requirements and regulations, improve and harmonize the operations of one-stop border points (OSBP) by building a comprehensive data network with professional systems and common IT platforms to reduce on transit and clearance time at borders and ports. This will increase on fast-tracking and tracing of cargo in transit which will minimize cargo loss and reduce the delivery time into foreign markets.

The study limitations open up opportunities for further research. This study purely focused on the sustainability of export competitiveness in EAC. Future studies may build upon our findings and study the subject in other developing countries and regional groupings. Such studies would be important to compare the results from different countries or regions that are heterogeneous in nature.

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