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Does the East African Community Common External Tariff have Implication on Burundi's Trade, Welfare and Tariff Revenue for Selected Agro-Food Sensitive Products?

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Abstract

Using the 2010 – 2016 trade data from World Integration Trade Solution (WITS) and the 2017 version of the East African Community-Common External Tariff (EAC-CET) document, this study employed SMART model at HS-6 level, to assess the effect of EAC-CET on selected agro-food sensitive products and their implication on Burundi's trade, welfare and tariff revenue. Two tariff scenarios were defined–the CET on selected sensitive products imported by Burundi from the rest of the world (RoW), and the variation of CET on tariff revenue. The results indicates that implementation of EAC-CET lead to a decrease in imports from RoW resulting into trade loss equivalent to 6 124 and 33 782 thousand USD for rice and wheat, respectively. The diversion of rice and wheat imports to its EAC partners is estimated to be 1626 and 831 thousand USD, respectively. Government revenue from high tariff on rice and wheat, are respectively estimated to be 9277 and 6627 thousand USD. If it were not for the CET variation, Burundi would be gaining extra 231 and 363 thousand USD tariff revenue from both rice and wheat, respectively. On welfare, Burundi loses in terms of rice and wheat consumption 1258 and 6051 thousand USD, respectively but gains in maize. It is therefore, recommended that rice and wheat should be removed from the list of sensitive products, and criteria for products inclusion or exclusion in the list of sensitive products be based on the products' welfare implications and needs of local consumers.

Key words: Agro-food sensitive products, EAC-CET, trade, welfare, tariff revenue.

1 Introduction

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Burundi joined the East African Community (EAC) and Common External Tariff (CET) in 2007 and 2009, respectively (Shepherd *et al*., 2017). In 2010, member countries agreed to remove internal tariffs based on the principle of asymmetry and set a three-band CET (EAC, 2012) and a list of sensitive products. The products have been so qualified based on their potential for domestic production and cross-border trade. As such, the products were given extra protection higher than 25 percent duty, which is the maximum for non-sensitive products (Kenya Private Sector Alliance, 2010). Internationally, there is no rule or standard criteria for selection or classification of sensitive products hence member countries get freedom to negotiate and set the list (Hammouda *et al*., 2007).

In the EAC, decisions for inclusion or exclusion of products in the list of sensitive products are oftentimes made politically without deep analysis of economic and poverty implications (Bünder, 2018). In fact, EAC is a net importer of sensitive products (Kabanda, 2014). In 2012 for example, over 90 percent of EAC demand was met by imports from the rest of the world for 65 percent of the sensitive tariff headings (Kari*ngi et* al., 2016). This is a major cause for the instability of CET because high tariff imposed on sensitive products and the insufficient supply of these products within the EAC forces the member states to frequently review the rate of CET using the duty remission or stays of application schemes. This situation makes CET unstable and unpredictable for investors from outside the EAC (KEPSA, 2010).

Agro-food products are among the classified sensitive products on which CETs are imposed. Trade in agro-food sector at any stage of cooperation remains complex than any of non-agro-food sector and change across agreements (Aksoy, 2004). Comparing trade in agro-foods and non-agro-food sub-sectors, it comes out clear that despite the negotiation at Regional Trade Agreements and World Trade Organisation (WTO) led to a general reduction of existing tariffs on non-agro-food products; it remains relatively high on agro-food products. According to Makochekanwa (2010; 2012), this situation results into distortion of trade. In EAC, the nature of trade for all EAC partner states except Kenya is dominated by agricultural products (Kabanda, 2014), implying that the EAC trade is not dispensed with aforementioned challenge but the complexity can be more serious given the instability of CET.

Burundi is an agro-food deficit country depending largely on imports to fulfil the gap between the demand and supply of these products (Diagnostic Trade Integration Study (DTIS), 2012). Maize, wheat, and rice are among agro-food products imported by

the country and are classified as sensitive agro-food products. Before Burundi joined the EAC - CET in 2007, the import of these products in between 2000 and 2006 was almost 55 percent from outside the actual EAC members and almost 45 percent from EAC members (WITS, 2019). Before Burundi adopted the CET, import taxes for these products were on average 40 percent for maize, wheat, and rice while after implementation of CET it was 50, 60, and 75 percent for maize, wheat, and rice respectively (Vitale *et al*., 2013). Similarly, prior to the implementation of CET, the imports contributed about 71 percent of trade and 13 percent in tax revenue (Banque de la République du Burundi, 2012). The reported differences in import taxes have different implications on prices of the imported products. For example, due to changes in tariff rates, prices of these goods will have to change and impact the consumer welfare. In addition, the level of tariff revenue and trade has to change because the broad goal of tariff rate is to regulate trade and raise public revenue (Pritchett *et al*., 2016).

The complexity of implementation of CET has resulted into a stream of literature on the effect of EAC - CET (Stahl, 2005; USDA 2010a, 2010b; Frazer, 2012; Kabanda, 2014; Geourjon and Laporte, 2008; Shinyekwa *et al*., 2016) which has revealed that the implementation of CET leads to an increase in the level of prices of sensitive products. This stream of literature has also documented that implementation of CET create disproportionate distribution of gains from welfare, trade, and tariff revenue among member countries. It is clear from the literature that most of the empirical research on implementation of CET in East Africa used the whole comprehensive list of sensitive products. This has largely left out country specific policy implications because the comprehensive list of sensitive products is a mixture of agricultural and non-agricultural products. This study provides new insights to that effect by specifying a few agro-sensitive products from the comprehensive list of sensitive products. Furthermore, we determine the level of change on trade of agro-food products and tariff revenue that could be attributed to the implementation of CET at a country level. We also assess the implication of increase of CET on trade and welfare of selected agro-food products, and the implication of implementation and variation of CET on tariff revenue for the same products.

The rest of this paper proceeds as follow: After the background information, we present in section two the methodology of the paper detailing the research design, data source and analytical methods. This is followed by section three

that is discussing the study findings. Finally, section four of the paper presents conclusions and policy implications.

Methodology

2.1 Data Sources

This study used the 2010-2016 trade data from WITS database and the EAC-CET document version 2017. The WITS database contains three major trade databases namely the United Nations Conference on Trade and Development (UNCTAD), Trade Analysis and Information System (TRAINS), the United Nations Commodity Trade Statistics (UNCOMTRADE), and the World Trade Organization (WTO) integrated database or Consolidated Tariff Schedule (CTS). This paper utilized the WITS software embedded data on tariffs, elasticities, and trade flows.

The time series data of Burundi as an importing country from the Rest of the World (RoW) and as an exporter was downloaded from UNCTAD Trade Analysis and Information System (TRAINS) database covering the period between 2010 and 2016 with the HS level that gives most details/disaggregation. This is important because the selected product cluster was selected for a maximum level of trade detail in this study.

SMART-WITS contain the export supply, import demand, and substitution elasticities, all of which can directly be retrieved from the same. The import demand elasticities as applied in the SMART model are product specific, but their default values are the same for all trade partners. The SMART model estimated elasticities can be substituted by the default elasticity values, which are also imbedded in the SMART model. The model assumes 1.5 and 99 default values of substitution and export supply elasticities, respectively, both of which were applied in this paper. Included also are the Burundi's imposed pre-CET import rates and the Most Favored Nations (MFN) rates which is in Market access Map database used at digit 6 HS level. The post-CET tariffs, the MFN from TRAINS database were used, and for scheduled tariff, the EAC-CET document version 2017 was used.

This study intended to assess the effect EAC-CET has on Burundi's trade, welfare, and revenue. Two scenarios were used to assess this effect. The first scenario is to evaluate how is Burundi affected by deciding to join EAC-CET despite its commonly known effect of the same on some import tariff. This scenario examine what Burundi is losing (gaining) in terms of total trade, consumer

welfare and revenue by comparing the situation before CET and after. Then the tariff before MFN adoption (2008 as a reference year) were used within the same period 2010 - 2016 (post-CET period). The second scenario examines the distortion that is created by the variation of CET due to the use of “stays of application/exemption regime”. This scenario compares the applied tariff with the scheduled ones. The scenario is very important because by joining the CET, small country loses in terms of consumer welfare, but they believe to compensate it in tariff revenue but due to fluctuation of CET, this scenario helps to show how Burundi is affected in terms of tariff revenue.

Theoretical Framework

The present paper is based on the theory of customs union. This theory is divided into two approaches namely the trade diversion creation (DC) approach and terms of trade (TT) approach. The difference between the two approaches is based on the types of models applied, the underlying assumptions and the questions addressed (Lai and Riezman, 2016). The DC approach commonly applies the partial equilibrium analysis. The approach was founded by Jacob Viner in 1950, through the work “Customs union issues”, where the concept of trade creation and trade diversion was introduced, and later became crucial instruments for a better understanding of customs union’ analysis and effects. It was generally thought that the customs union raises the level of welfare of country members as customs union drive to free trade at least within a regional bloc. Viner was the first to prove that the belief is not always true.

According to Viner (1950), trade creation is defined as a consumption movement from more to less costly local products among member countries. Alternatively, trade creation happens when local producers of a product in a member country are substituted by producers of the same product from another member country within the customs union. This scenario is because of changes in import tariff policies, and trade diversion as the products consumption move from low-cost non-member country to higher cost member country due to tariff changes brought by customs union. Using the partial equilibrium analytical framework (Viner-Lipsey-Meade approach), the net effect of a custom union (CU) is determined by the way products from RoW are taxed or restricted and the conditions in which the CU was created. Some pre-integration factors may possibly affect the

outcomes of a customs union, such as level of tariff and the structure of demand and supply (Gandolf, 1987).

The DC approach tries to address the impact of customs union on the world welfare. The partial equilibrium methods in agriculture policy analysis are composed of four different models namely SMART, GSIM, TRIST and ATPSM. The basic difference in these models is the assumptions behind their use. Different authors (Vanzetti, 2006; Khorana *et al*., 2009; Hamilton, 2009; Mugano *et al.,* 2014; Do, 2013; Oluwusi, 2016) have explained the effect of trade policies on welfare and revenue using partial equilibrium methods. Using the DC approach, this paper will employ the SMART model to assess the impact of tariff policy changes on trade, consumer welfare, and tariff revenue.

The SMART model employed in this study is embedded in WITS software, which was introduced by the World Bank and UNCTAD in the 1980's (Lang, 2006). The model is based on the selected importing market and all counterpart-exporting partners. The model simulates the effects of tariff rates changes on imports and other variables. The model has three elasticities namely the supply, import substitution, and import demand elasticities. The supply elasticity is considered infinite (=99) implying that an increase in demand for a given good will always be matched to the producers and exporters of the given good without any impact on their prices. This assumption reflects the reality when the importer is a small market like Burundi and the exporter consists of large economies (RoW). The import substitution elasticities measure the rate at which a good from one region substitutes a different good from another region. The model applies the Armington assumption which asserts that there is an imperfect substitution between good form different countries. Within the model, the import substitution elasticity for each good has a default of 1.5. The import demand elasticity measures the demand response to a change in import due to shift in import price (WITS, 2011).

SMART provides on several variables, the effects of any change in trade policy. It gives particular results on imports coming from different sources. SMART model also facilitates the decomposition of these observed trade effects into trade creation and diversion effects. Figure 1 explains the trade diversion and creation effects. Suppose two countries A and B are partners in trade whose market is important. The composite quantity consumed q_0 comes from A and B. Suppose again that the imported quantity from country A which is A_0 and from country B which is B_0 respectively is given by E_0, the point where q_0 and the

line illustrating the relative price between the two varieties interact (WITS, 2011).

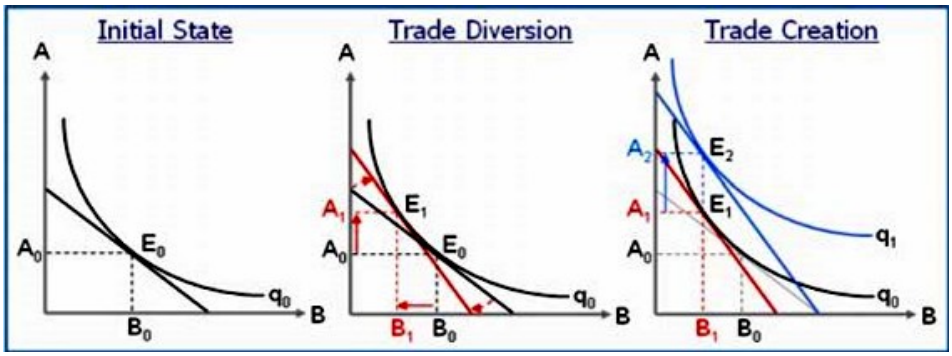


Figure 1: Trade diversion and trade creation effects.
Source: (WITS-SMART User Manual, 2011)

Referring to Fig. 1, trade creation happens if the variations in price of goods from country A leads to an increase in the composite quantity curve q_1 showing a greater import of the variety coming from country A (A_1 to A_2) by consumers at a permanent level of spending. Country A will have benefits on both trade creation and trade diversion indicated by (A_1 to A_2) and (A_0 to A_1) respectively, while trade diversion in Country B will be negatively affected as indicated by (B_0 to B_1) with no effect on trade creation. The increase in imports for the new partner country is explained by the changes in tariff on product from country (WITS, 2011). From Fig. 1, trade diversion occurs when country A incur reduction in tariff thus change the comparative prices of traded products compared to country B. As result, goods from country A will be more consumed (A_0 to A_1) while imports coming from country B faces reduction (B_0 to B_1) at a new equilibrium (E_1).

With the SMART model, it is possible to estimate the consumer surplus, tariff revenue, and welfare effects attributable to trade policy change. The tariff revenue variation on a given import flow is given as the difference between the products of the final ad-valorem tariff and the final import value and the initial ad-valorem tariff and by the initial import value. Fig. 2 shows the nexus between tariff revenue, consumer surplus and welfare changes. The Figure further shows the market for a given imported good using the demand and supply curves (export supply elasticity is infinite) (Fig. 2).

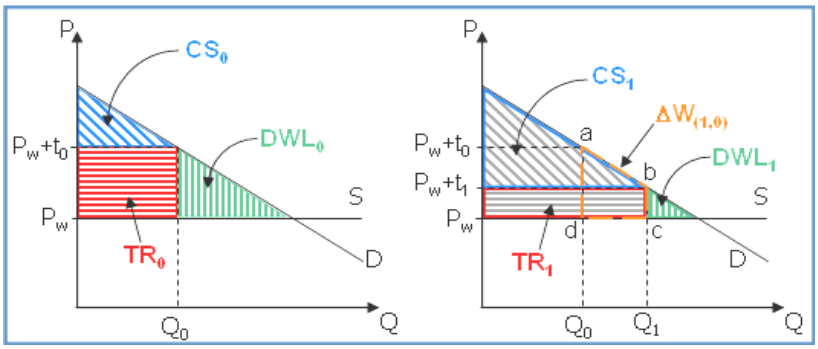


Figure 2: Change in Consumer Surplus, Tariff Revenue, Deadweight Loss and Welfare
Source: (WITS SMART User Manual, 2011)

2.2 Analytical Tools

The mathematical derivation of SMART model is emanating from Laird and Yeats (1986) who put forward the trade policy change estimation equation. The derivation process starts with the trade equilibrium, a state where the import demand and export supply functions are equal (Karagu, 2012). Analysis of the trade diversion, trade creation, and tariff revenue effects are driven by the consumer behaviour. This can be specified from formulation of the model, which was adopted by Laird and Yeats (1986). Equation 1 presents the import demand function for importing country.

$$M_{ijk} = F\left(Y_i, P_{ij}, P_{ik}\right) \quad (1)$$

Where:
M = Imports; Y = National Income; P = Price; j = Importing country in this case Burundi; I = Commodities imported; k = Preference beneficiary country in this case ROW.

A simple supply function of preference beneficiary country is given in equation 2.

$$X_{ijk} = F\left(P_{ijk}\right) \quad (2)$$

Where X_{ijk} = Exports of commodity i by country k to country j.

The standard partial equilibrium (equation 3), which is obtained by equating equation 1 and 2 to give equation 3, emanates from the exports of preference beneficiary countries and import to importing country. It is assumed that exports are equal to imports (equation 3), and a preferential trade area without taxes,

i.e. the domestic price of commodity in the importing country is equal to the price in the exporting country. However, this is not always the case since in most cases commodities have an extra portion in form of import taxes plus transport and insurance charges.

$$M_{ijk} = X_{ijk} \tag{3}$$

In the importing Country, the domestic price of the commodity from the rest of the world's j^{th} market will be equal to the rest of the world's k^{th} export price plus transport and insurance charges. This price would change by an amount equivalent to the *ad valorem* incidence of any tariff, as given in equation 4.

$$P_{ijk} = P_{ikj}\left(1 + t_{ijk}\right) \tag{4}$$

Where t_{ijk} = Tariff rate

Derivation of trade creation equation is given by equations 1 to 4. Firstly, it is possible to derive the total differential of the domestic price with respect to tariffs and foreign price.

$$dP_{ijk} = P_{ikj}dt_{ijk} + \left(1 + t_{ijk}\right)dP_{ikj} \tag{5}$$

Substituting equations 4 and 5 into the elasticity of import demand (equation 6) gives equation 7.

$$\frac{\Delta M_{ijk}}{M_{ijk}} = \alpha_i \frac{\Delta P_{ijk}}{P_{ijk}} \tag{6}$$

$$\frac{\Delta M_{ijk}}{M_{ijk}} = \alpha_i \left[\frac{dt_{ijk}}{\left(1+t_{ijk}\right)} + \frac{dP_{ijk}}{P_{ijk}}\right] \tag{7}$$

Where α_i is the elasticity of import demand with respect to domestic price. Elasticity of export supply (equation 8) is derived from equation 3.

$$\frac{dM_{ijk}}{M_{ijk}} = \frac{dX_{ijk}}{X_{ijk}} \tag{8}$$

The first order condition with respect to the word price for the left hand side of equation 8 gives equation 9.

$$\frac{dP_{ikj}}{P_{ikj}} = \frac{1}{\gamma_i} * \frac{dM_{ijk}}{M_{ijk}} \quad (9)$$

From equation 9, γ_i is the elasticity of import demand for commodity *i* in the importing country from the relevant trading partner. Equation 8 can be given by the trade effect creation after substitution of equation 7 into 6. From equation 3, equation 8 is equivalent to exporting country *k*'s growth of exports of commodity *i* to country *j*.

$$TC_{ijk} = M_{ijk}\alpha_i \frac{\mathrm{dt}_{ijk}}{(1+\mathrm{t}_{ijk})*[(1-\alpha_i/\gamma_i)]} \quad (10)$$

Where TC_{ijk}= Trade creation.

TC_{ijk} is the sum of trade created over *i* commodities due to tariff change. M_{ijk} is the import demand of the given commodity *i*. Thus, trade creation depends on the level of imports, import demand elasticity, and the relative tariff change. It may be noted that, if the elasticity of export supply with respect to the world price is infinite, the denominator on the right-hand side of equation 8 becomes unity and can be ignored. If $\gamma_i \to \infty$ then equation 8 can be simplified to give equation 11.

$$TC_{ijk} = M_{ijk}\alpha_i \frac{\left(1+t^1{}_{ijk}\right)-\left(1+t^0{}_{ijk}\right)}{\left(1+t^0{}_{ijk}\right)} \quad (11)$$

Where TC_{ijk} is the sum of trade created in thousands of dollars over *i* commodities affected by tariff change, and α_i is the elasticity of import demand for commodity *i* in the importing country from the trading partner. M_{ijk} is the value of import demand of the commodity *i* in thousands of USD. $t^0{}_{ijk}$ and $t^1{}_{ijk}$ represent tariff rates for commodity *i* at the initial and end periods respectively. Trade creation then depends on the level of imports, the import demand elasticity, and the relative tariff change. Trade creation occurs when TC_{ijk} is increasing substantially.

For the case of trade diversion effects, two sources will be considered–the RoW and EAC member countries as exporters to Burundi (equation 12).

$$\sigma_M = \frac{\frac{\Delta\left(\frac{\sum_k M_{ijk}}{\sum_K M_{ijK}}\right)}{\frac{\sum_k M_{ijk}}{\sum_K M_{ijK}}}}{\frac{\Delta\left(\frac{\sum_k P_{ijk}}{\sum_K P_{ijK}}\right)}{\frac{\sum_k P_{ijk}}{\sum_K P_{ijK}}}} \quad (12)$$

Where σ_M is the elasticity of substitution with respect to the relative prices of the same product from different sources, whereas k denotes imports from one (group) of foreign supplier(s), K denotes imports from another (group) of foreign supplier(s), and the summation is only across the country group k or K but not across product groups (i) nor across imports (j).

Trade diversion (equation 13) is obtained by expanding and rearranging equation 12.

$$TD_{ijk} = \frac{M_{ijk}}{\sum_k M_{ijk}} \frac{\sum_k M_{ijk} \sum_K M_{ijK} \frac{\Delta\left(\frac{P_{ijk}}{P_{ijK}}\right)}{\frac{P_{ijk}}{P_{ijK}}} \sigma_M}{\sum_k M_{ijk} + \sum_K M_{ijK} + \sum_k M_{ijk} \frac{\Delta\left(\frac{P_{ijk}}{P_{ijK}}\right)}{\frac{P_{ijk}}{P_{ijK}}} \sigma_M} \quad (13)$$

Where:

TD_{ijk}= Trade diversion on commodity imported from country *k* into country *j;* M_{ijK}= Value of imports from the EAC countries in thousands of USD; M_{ijk}= Value of imports from the rest of the world in thousands of USD; σ_M = Substitution elasticity.

The total trade effect is obtained by summing the trade creation and trade diversion effects. The results can be summed for groups of suppliers either for individual products or across product groups (equation 14).

$$TE = TC + TD \quad (14)$$

The quantification of the revenue effect in the WITS/SMART model is simple. The tariff revenue is given as the product of the tariff rate and the value of imports. Equation 13 has direct application in estimating the revenue effect for the importing country. Otherwise, the percentage increase in revenue is equal to the percentage increase in imports *plus* the percentage increase in prices. This can be shown by taking from equation 15 the total differential of revenue with respect to import price and the value of the resulting imports into equation 16.

$$Rikj = Xikj.Pikj \tag{15}$$

$$dRijk = Pijk.dMijk + Mijk.dRijk \tag{16}$$

Dividing the expression on the left-hand side (LHS) of equation 16 with the LHS expression of equation 15 and the right-hand side (RHS) of equation 16 with the RHS of equation 15, we obtain equation 17.

$$\frac{dRijk}{Rijk} = \frac{(Pijk.dijk + Mijk.dPijk)}{(Pijk.Mijk)} \tag{17}$$

Reducing equation 17 and substituting from equation 10 yields equation 18.

$$\frac{dRijk}{Rijk} = \frac{dMijk}{Mijk} + \frac{dPijk}{Pijk} \tag{18}$$

In other words, equation 18 can be written as equation 19.

$$\frac{dRijk}{Rijk} = \left[\frac{dtijk}{(1+tijk)}\right].Em + \left[\frac{(1+Ex)}{(ExEm)}\right] \tag{19}$$

Furthermore, the welfare gain can also be thought of as an increase in consumer surplus, as expressed in equation 20.

$$W_{ijk} = 0.5\left(dt_{ijk}\, dM_{ijk}\right) \tag{20}$$

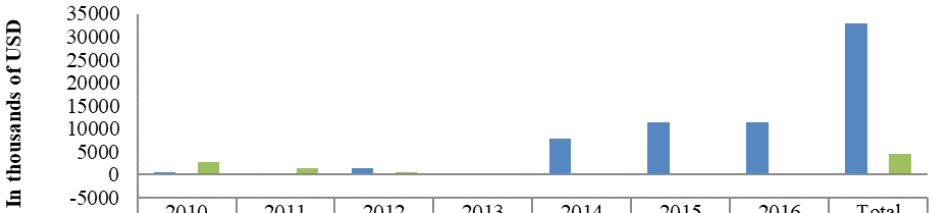
The coefficient 0.5 captures the average ad-valorem incidence of the tariff barriers before and after their changes.

Equation 19 assumes that the elasticity of the export supply is infinite. In the case in which the elasticity of export supply is less than infinity, the supply price is higher than before. The new domestic price of imports does not decline to the full extent of the tariff change, and import expansion is less than in the case of infinitely elastic export supply. Welfare can still be computed using equation 20 but needs to be interpreted as a combination of consumer surplus and producer surplus.

3 Results and Discussion

3.1 Effect of Implementation of EAC-CET on Trade

The impact of implementing CET on overall changes of import of Burundi for selected sensitive products from the rest of the world is presented in Fig. 3. The data used for changes is the difference between the trade before and after for each year and each product. The description was done using the first scenario. The findings show that generally, Burundi's imports on selected sensitive agro-food products from the rest of the world would increase considerably in wheat and rice with the average of 32,949 and 4,517 thousand of USD respectively, and -232.072 for maize between 2010 and 2016. The implication is that Burundi would gain on its rice and wheat imports from the rest of the world if these products would not be classified as sensitive. Alternatively, Burundi has foregone 4,517 and 32,949 thousand of USD from rice and wheat imports respectively by adopting the CET, but also it would have lost in terms of maize imports by adopting CET in favour of its pre-CET tariff.



	2010	2011	2012	2013	2014	2015	2016	Total
Wheat	618.196	248.285	1392.432	0	7916.015	11387.109	11387.109	32949.146
Maize	7.808	7.808	-164.53	-41.555	-41.555	-0.024	-0.024	-232.072
Rice	2788.704	1340.723	469.483	31.944	0	0	-113.372	4517.482

Figure 3: Changes in imports due to CET

From Fig. 3, wheat and rice have been the most affected products by the changes in tariff policy. Given that trade is bilateral, these changes did not affect only importers but also exporters as indicated in Fig. 4. Exporters have been grouped into two groups, from EAC and from the rest of the world. The graph shows that the changes in tariff led to an increase in imports from EAC and reduction in imports from the rest of the world. The most affected sector was wheat from the rest of the world. When comparing changes in exports behaviour to Burundi from EAC and the rest of the world, even though EAC has increased its export to Burundi, changes were decimal.

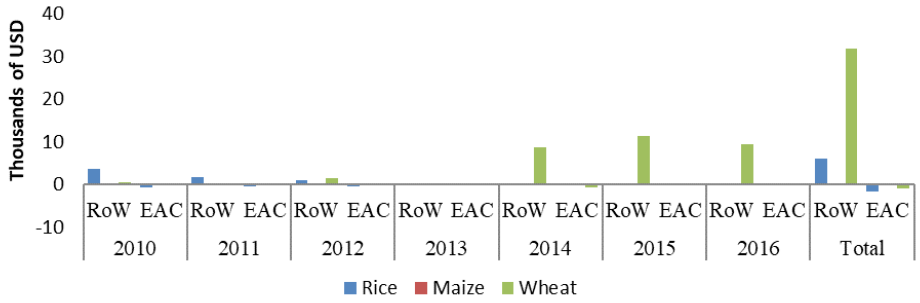


Figure 4: Changes in export due to CET

As indicated in previous sections, in this study, we are examining the effect of the implementation of EAC-CET for the selected sensitive products on trade. Our interest in this specific objective is to see how the increase in import tariff of Rice, wheat and maize due to the implementation of CET, affects Burundi' trade with its partner. In terms of trade, Burundi is dealing with both the EAC member countries but also with the rest of the world. Consequently, effects on trade have been looked on two sides– firstly on how the trade between Burundi and the rest of the world has changed due to EAC-CET, and secondly on how the trade between Burundi and its EAC partners changed due to CET.

Total changes in Burundi's imports from the rest of the world are decomposed into two parts namely trade creation and trade diversion. Using simulation results from the WITS/SMART model, Table 1 shows the trade creation, trade diversion and total trade effects of the adoption of the EAC CET on Burundi. The results are aggregated from 2010 to 2016 data for each product.

Table 1: Changes in Burundi 'trade with the rest of the world due to CET

	1st Scenario (in 1000 USD)			2nd Scenario (in 1000 USD)		
	TCE	**TDE**	**TT**	**TC**	**TD**	**TT**
Rice	4497.483	1626.245	6123.728	-4900	-792.9	-5690.14
Wheat	32949	831.97	33781.97	-2476.9	-262.996	-1094.56
Maize	-232.3	-32.52	-264.8	-8509.69	-17.258	-8527.22

The simulation results (Table 1) have been obtained based on the two scenarios. Starting with the first scenario, the evaluation was done based on the comparison between the application of Pre-CET tariff between 2010 and 2016 with the applied CET in the same period and then evaluate by comparing the results. For pre-CET, a tariff applied for these products in 2008 was used as a reference. The second scenario compares the applied tariff with the EAC scheduled tariff in order to show what would be the full effect. The findings show that in the first scenario, two of the selected products have a positive trade creation and diversion with trade creation exceeding trade diversion effect. More specifically, maize has negative trade creation and diversion effect. The respective estimated value is 6,123; 33,781 and -264 thousand USD for rice, wheat, and maize, respectively in terms of trade with the rest of the world.

One important question is about the implication findings recorded in Table 1. Based on the first scenario, the results imply that by adopting the EAC-CET, Burundi is losing in trade, and the losses are estimated to be 6,123 and 33,781 thousand USD for rice and wheat, respectively in its trade with the rest of the world. However, the country is gaining in maize trade with the rest of the world by about 264 thousand USD. A comparison with results of the second scenario suggests that the losses would be more serious if Burundi would have fully implemented the CET as it was scheduled because the losses would be estimated to 6,123 plus 5,690 thousand USD for rice, and extra 1,094 thousand USD for wheat.

Specifically, trade would be created between Burundi and the rest of the world. The created trade is on average estimated to be 4,497 and 32,949 thousand USD for rice and wheat, respectively. Table 1 shows the estimation of trade that would be diverted respectively in rice and wheat, if the same products were not classified as sensitive, or if Burundi would not have joined the EAC-CET.

Table 2: The most partners of Burundi in rice, wheat, and maize

Rice	**Wheat**	**Maize**
Japan	USA	Belgium
China	Russia	Zambia
Italy	Canada	DRC

Findings from the WITS-SMART model presented in Table 3 show that zero trade has been created and trade diversion is negatively affected except for the case of maize, which explains the negative sign of total trade because the total trade is given by the sum of trade creation and trade diversion.

Table 3: Changes in Burundi's trade with the EAC due to CET

	1st Scenario (in 1000 USD)		
	TCE	**TDE**	**TT**
Rice	0	-1626.245	-1626.245
Wheat	0	-831.97	-831.97
Maize	0	32.52	32.52

For the case of EAC, by adopting the EAC-CET, in the first scenario, a negative sign on the value of total trade implies that Burundi has diverted its trade for the selected products to its EAC partners. The effect is consistent with the studies of Hamilton (2009), Shinyekwa and Otieno (2013). Furthermore, Table 3 shows that the diversion is estimated to be -1626 and -831 thousand USD for rice and wheat respectively. This is good but very doubtful because many studies such as that of Karingi (2012); Kabanda (2014) have confirmed the insufficient supply of this product within the EAC region implying that the diversion of import of these products to the EAC members with insufficient producers may be due to re-exportation.

A similar situation has been noted by Khorana *et al.* (2014) when trying to assess the effect of Uganda reducing the import tariff on some products to Kenya, which found that Kenya increased the export of some products that are not even originated from Kenya to Uganda. Due to lack of re-exportation data in WITS, only the trend of import of these products from RoW to EAC (and then their export to Burundi) from 2010 to 2106 were analysed (Fig. 5 and 6).

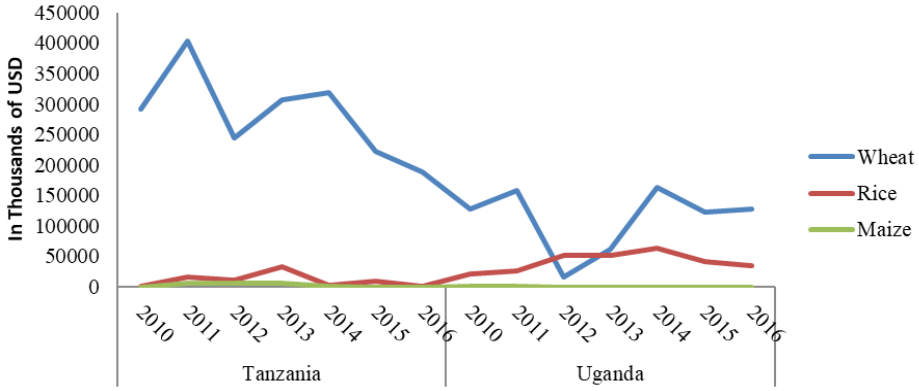


Figure 5: Import of the selected product from RoW to Uganda and Tanzania

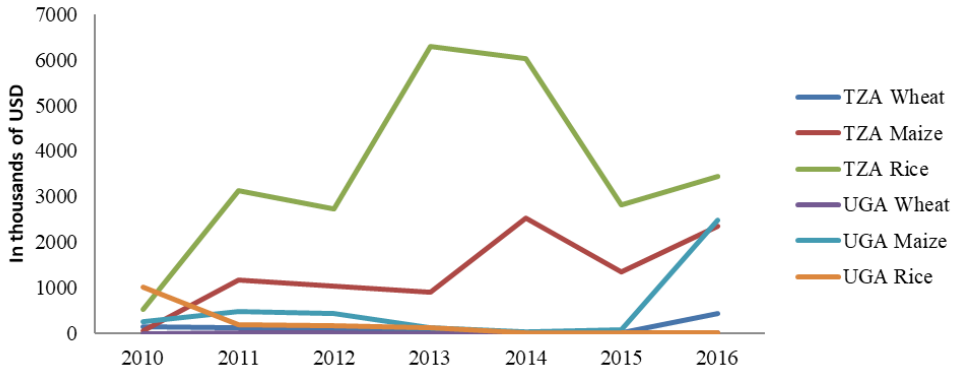


Figure 6: Import of selected products in BDI from UGA and TZA

From Fig. 5 and 6, one can doubt on the diversion of Burundi's trade to Uganda and Tanzania in terms of rice imports. Similarly, one can doubt on the diversion of Burundi's trade to Tanzania in terms of wheat that is due to re-exportation given that the same exporters to Burundi were importers from the rest of the world for the same products and period. However, this was an arrangement to get an understanding of the diversion of Burundi's

trade from their EAC partners who are also criticized to be deficit countries in terms of production of these products. The true picture would be given by the data of re-exportation for the two countries. The findings prove that diversion of trade to EAC member states is insignificant compared to losses that implementation and variation of EAC-CET created in trade with non-members.

Table 4: The most sensitive sectors

Country	HS	Description	Gains
Tanzania	1006.10.00	Rice in the husk (paddy or rough)	-4.201
	1006.20.00	Husked (brown) rice	-178.068
	1006.30.00	Semi-milled or wholly milled rice, whether or not polished or glazed	-111.126
	1006.40.00	Broken rice	-3.906
Uganda	1006.20.00	Husked (brown) rice	-733.956
	1006.30.00	Semi-milled or wholly milled rice, whether or not polished or glazed	-541.299

The harmonised system (HS) provides details of each product up to six levels. From Table 4, the most sensitive among the six levels of rice, is the level two that represents husked rice. Burundi imports more of this category of rice from Uganda than Tanzania but import more of paddy and rice from Tanzania compared to Uganda, which are the two exporters of rice to Burundi among its EAC partners (Table 5).

Table 5: Sources and gains of Burundi's imports of sensitive products

Country	HS	Gains
	Maize	
Tanzania	1005.9	-11.137
Uganda	1005.9	-8.682
Zambia	1005.9	-50.122
Wheat		
Tanzania	1001.99	-795.043

3.2 Effect of Implementation of EAC-CET on Tariff Revenue and Consumer Welfare

The second specific objective of this study was to examine the effect of implementation and variation of EAC-CET on Burundi's tariff revenue. The aanalysis of this objective was done two times with reference to the two scenarios. The first time involved the

first scenario to show how tariff revenue was affected by an increase of import tariff rate caused by adoption of CET. The second time involved assessment of how Burundi is affected in terms of tariff revenue, due to the variation in CET tariff. This was estimated by using the second scenario. As it has been argued in the statement of the problem, the increase in tariff does not always go one-for-one with the increase in tariff revenue (Pritchett *et al*., 1993) but in theory, there are two contrasting forces that create doubt as to how the changes in tariffs affect revenue.

First, reduction in tariff rate results in drop of tariff revenue. Secondly, as the prices of the goods drop due to decline in tariffs, there is a tendency for imports to increase, causing the tariff revenue to increase (Mugano, 2014). This implies that an increase in tariff will lead to an increase in tariff revenue at first, but it will also increase the prices of concerned goods and then negatively affect the level of imports. Burundi is among the EAC countries that have to transform their national tariff structures in order to conform to the EAC-CET rates. To know how a country is affected by changes in tariff policies is very important given that with the adoption of CET, countries are substituting their tariff policies with the common ones.

Table 6: Implementation of EAC-CET on tariff revenue

HS	PRODUCT	1st Scenario REVENUE (thousand USD)	2nd Scenario REVENUE (thousands USD)
1006	Rice	-9277.1	2317.417
100590	Maize	134.374	262.406
100199	Wheat	--6627.32	362.641

Table 6 show the revenue implications of EAC-CET on Burundi. The WITS/SMART simulations results reveal that Burundi is gaining a total tariff revenue of 9,277 thousand USD and 6,627 thousand USD from imports of rice and wheat, respectively from the rest of the world due to adoption of EAC-CET. In other words, the results from SMART-model reveals that Burundi would register losses in terms of tariff revenue for imports from the rest of the World if it had not joined the EAC-CET though it would have increased its tariff revenue in terms of import of maize even if the gain is insignificant. These results are consistent with the report of observatory of governmental actions (OAG) of 2009, which shows that Burundi will gain in terms of tariff revenue on import of rice and wheat. In addition, the study of Gourjeon (2008) pointed out

that Burundi will increase its tariff revenue but prices of some goods like rice will have to increase.

Comparing results from the first and second scenarios, one can see that if EAC-CET was fully implemented, Burundi would have gained more. Findings from simulation of SMART model using the second scenario show that if the scheduled EAC-CET would be fully applied instead of the applied tariffs, Burundi would have gained 2,317 and 362 thousand USD in terms of import tariff on rice and wheat, respectively. In other words, the findings from SMART model show that the variation of CET due to the "stays in application/exemption regime", Burundi is losing in terms of expectations on import tariff revenue on rice, wheat and maize by 2 317, 362 and 262 thousand USD, respectively.

This is very important for countries that depend on imports like Burundi because these countries tend to forego the consumer's welfare and expect to compensate it with the tariff revenue. This is manifested by the fact that before most governments decide to join regional integrations; their first concern is to check the impact in terms of tariff revenue. Seemingly, this did not happen in Burundi before implementation of this study. There are limited government reports done before the implementation of EAC-CET and were largely based on changes in tariffs revenue. This is confirmed by the study of Geourjon and Laporte (2008), which attempted to assess the impact of Burundi joining the EAC-CET in terms of tariff revenue. The study found that variation of CET due to the Stays in application/exemption regime is creating losses in terms of tariff revenue on the side of Burundi. Generally, results of this study prove that the variation of EAC CET created losses in tariff revenue of Burundi.

Table 7: The most sensitive sectors

HS	Description	Gains
1006.10.00	Rice in the husk (paddy or rough)	0.69
1006.20.00	Husked (brown) rice	-4926.7
1006.30.00	Semi-milled or wholly milled rice, whether polished or glazed	-4111.41
1006.40.00	Broken rice	-105.918

The welfare effect occurs from the gains or losses that consumers in the importing country get from the changes in domestic prices after changes in tariffs. One of the main arguments in favour of free trade is that consumers will benefit from lower prices, and whether or not this will occur depends on the degree of trade creation against trade diversion (Mugano, 2014). However, with the customs union, changes in tariff are not

influenced by free trade only, but also CET. Usually CETs have a negative impact on consumer welfare. As it has been observed in tariff revenue and trade effect, one can predict how the consumer surplus is expected to change.

Table 7 presents the simulation results from SMART model, which suggest that by deciding to adopt the CET, Burundi is losing in terms of consumer welfare on rice and wheat. The losses are estimated to be equal to 1,258 and 6,051 thousand USD for rice and wheat imports respectively. The gains are very insignificant in terms of maize estimated to be 4.689 thousand USD implying that Burundian households would be able to increase their rice and wheat consumption, and hence their welfare would also increase, if Burundi had not joined the EAC-CET. These findings are consistent with the ones by the De la Rocha (2003) whose study evaluated the full implementation of COMESA-CET on Burundi. The study found that the increase in protection on import affect the level of consumer welfare and is not in favour of poor people products despite the negative impact that this would have on government revenue and some producers.

Table 8: Implementation of EAC-CET on Consumer Welfare Effect

HS	Product	Consumer Surplus
1006	Rice	1258.175
100590	Maize	-4.689
100199	Wheat	6051.287

Conclusion and Recommendations

By creating a list of sensitive products, the EAC Customs Union aimed at increasing the supply of these products within the region, by imposing an import tariff of more than 25%. However, the selection of these products has been criticized for not having standard criteria and the EAC has been reported to be a net importer of sensitive products (Kabanda, 2014). Also, in EAC, the selection of sensitive products has been criticized for being affected by vested interest of political influence, without a prior in-depth analysis of economic and poverty implications (Bünder, 2018). It is from this purpose that some studies (Kabanda, 2014; Frazer, 2012; Shinyekwa *et al.,* 2016) took interest to analyse the effect of giving high protection on these products. Some of these studies were interested in the whole list of sensitive products; consequently, the policy implication was drawn for all EAC countries while country members are differently endowed in terms of production. Other studies have just shown that the high protection given to these sensitive products will influence prices of agriculture products but did not go further to show what will be the

implication of such price increases. It is from this background that the present study emerged to examine the effect of protection given to some agri-food products classified as sensitive on Burundi.

Generally, this study intended to assess the effect of EAC-CET on Burundi's trade, welfare, and tariff revenue. The first specific objective was to examine the effect of an increase in import tariff on wheat, maize and rice trade due to the implementation of CET in Burundi. The trade effect was divided into two, trade creation and diversion effects. Based on the results of the SMART model, it is estimated that Burundi is losing in terms of trade with the RoW on rice and wheat. The rice and wheat value of losses is estimated to be 6,123 and 33,781 thousand USD respectively. Even though it has gained in trade of Maize (264.8 thousand USD), such a gain is insignificant compared to losses in rice and wheat trade. Furthermore, Burundi has diverted its trade to EAC member countries. Most of the Burundi's trade diversion on rice and wheat is with Tanzania and Uganda.

In terms of the effect of the CET increase on tariff revenue, the findings have proved that the implementation of CET led to gains in terms of tariff revenue for wheat and rice trade estimated at 9,143 and 6,627 USD million on rice and wheat imports respectively. The losses are equivalent to 238 USD million in maize imports from RoW. In addition, due to the variation of CET, Burundi is also losing 2,317 and 362 USD millions of rice and wheat in terms of expectations of import tariff revenue. As for the effect of increase in import tariff of rice, maize and wheat on consumer' welfare, the findings from SMART model show that Burundi is losing 1,254 and 6,051 thousand USD of rice and wheat respectively in terms of consumer's welfare.

The implementation of CET led to losses of trade and negatively affected the consumer welfare of Burundi. The study therefore recommends that the rate of import tariff on rice and wheat should be reduced, or the products should be removed from the list of sensitive products. In addition, due to negative effect on consumers' welfare, this study recommends that the inclusion of products in the list of sensitive products should be based on the need of local consumers. For the EAC, it is clear that despite the loss on trade and welfare, Burundi gained on tariff revenue, but the gain was not optimal due to the instability of CET. This study recommends that strategies of developing criteria of inclusion or exclusion of agricultural products in the list of sensitive should be established to reduce the use SAS or DRS, which are the main sources of CET instability.

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