COMESA Customs Union Commitments and the Impact on Kenya: Using the Wits-Smart Simulation Model

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ABSTRACT

This research article included quantitative estimations of the likely outcomes of the welfare effects, trade diversion effects, changes in export and import quantities, revenue effects, and trade creation effects resulting from the Common Market for Eastern and Southern Africa Customs Unions Commitments (COMESA CU). Kenya was used as the case study in this research project, which utilized the Software for Market Analysis and Restrictions on Trade (SMART) and Pan-Euro-Mediterranean tools (PEM). The World Integrated Trade Solution (WITS)/SMART software has access to the most recent data on Kenya and uses databases and records of trade-related information, including those maintained by the United Nations Conference on Trade and Development (UNCTAD), the World Trade Organization (WTO), the Common Format for Transient Data Exchange for Power Systems (COMTRADE), and the Transportation Reporting and Accounting Information System (TRAINS). The results of the analyses show that COMESA CU has no indication of trade diversion and had a trade-creation impact of US$310.50 million. Further analysis revealed that the COMESA CU procedure is expected to record losses in the amount of US$327 million. Additionally, a US$56.27 million consumer welfare effect was projected for COMESA CU. Imports increased by 2.8% at COMESA CU, but exports fell. The research recommends that export-boosting actions be taken, including bolstering export processing zones, offering export subsidies, developing supply-side infrastructure, offering trade financing, and enhancing export-supporting institutions. Kenya and other developing countries now have the ability to implement policies that will make sure they benefit the most from the various regional trade agreements, thanks to the findings of this study.

Keywords: *COMESA, CET, COMESA CU, Exports and Imports, Ex-Ante, Ex-Post Welfare Effects, Revenue Effects, Kenya*

I. INTRODUCTION

Kenya and other developing African countries believed that setting up regional free trade zones and implementing a customs union protocol would be an easy way to achieve economic prosperity. The Organization for Economic Co-operation and Development (OECD, 2011) speculates that this might not have been the case because non-tariff barriers and infrastructure issues have impeded the growth of regional commerce. The economic growth in Africa has been attributed by the United Nations Conference on Trade and Development (UNCTAD, 2008) to trade liberalization. This resulted from all tariffs and non-tariff obstacles being removed in free-trade zones (McGovern, 2015). Standardized transit fees allowed landlocked nations like Uganda, Burundi, Ethiopia, Zambia, Rwanda, and Zimbabwe to establish a transport route, which made it simpler for them to conduct business (World Bank, 2014; COMESA, 2014). An example of this is the yellow card motor insurance program enacted by COMESA member countries that has enhanced cross-border trade (Deardorff, 2014).

1.1 Statement of the Research Problem

As a country still recovering from the failures it had in the 1970s, Kenya faces hurdles as a result of commercial liberalization. In the late 1970s, Kenya faced a variety of economic challenges, including the dissolution of the East African Community (EAC), a decline in commodity prices, and a quadrupling of oil prices (Mbole-Kariuki et al., 2014). As a result, the country implemented price stabilization and trade liberalization initiatives. Despite the knowledge that emerging nations like Kenya lacked the competitiveness to compete, the International Monetary Fund (IMF) included trade liberalization measures in the packages it offered to these nations. The fact that trade liberalization led to catastrophic job losses, suffering, and entrenched poverty in Africa is significant (Mugano et al., 2013).

The fact that 9.92% of Kenya's tax lines are in the zero-rated system exacerbates the country's problem. This suggests that in the event that Kenya entered into a free trade agreement (FTA), 90.08% of the tariff lines would be liberalized. Additionally, it means that revenue losses would have a negative impact on the country. Furthermore, this

presents a serious risk to the local sector's ability to compete. Kenya's tariff structure has a more intricate effect than the Common External Tariffs (CET) that would be imposed in a customs union. Mugano et al. (2013) noted that Kenya faces the issue of overlapping membership, which may have an impact on Zimbabwe's noodle bowl results. This only serves to exacerbate the situation. Examples of countries with overlapping memberships are Kenya, Uganda, Burundi, and Rwanda, which are members of both the EAC and COMESA.

Kenya has ratified many trade agreements. These agreements include the East African Community Customs Union (EACCU), the African Growth Opportunity Act (AGOA), the World Trade Organization Free Trade Agreement (WTOFTA), the Common Market for Eastern and Southern Africa Free Trade Agreement (COMESAFTA), and the Common Market for Eastern and Southern Africa Customs Union (COMESA CU), among other international agreements. In order to determine which trade agreements are profitable and how some agreements might be changed to become profitable, this study suggests that it is crucial to demonstrate the welfare, revenue, and trade effects of these agreements. This is especially true with regard to the Common Markets for Eastern and South Africa protocol.

II. LITERATURE REVIEW

The literature on various Kenyan macroeconomic dynamic structures, the COMESA protocol, the COMESA Customs Union protocol, and a comparison between Kenya's and COMESACU's tariff structure was reviewed in this section. Explicitly, trade expansion effects and revenue implications of the customs union has been analyzed based on empirical and theoretical literature.

2.1. Kenya's Macro-economic Dynamics Structure

In the COMESA and East African regions, Kenya is widely recognised as a hub for trade and finance (Gondwe, 2021). It is also seen as a natural entry point because of its excellent market-based economy structure and liberalised international trade regulations (Were et al. 2013). Since gaining independence in 1963, Kenya's economy has grown in an erratic and irregular manner. Post-independence, Kenya's economy grew by 6% which ultimately fell to 4% in the 1990s. Kenya's growth rate increased once more during the millennium peaking at 7% in 2007 (Kimenyi et al., 2016). Figure1 shows, in percentage terms, the growth in Kenya's gross domestic product and exports from 1994 to 2014.

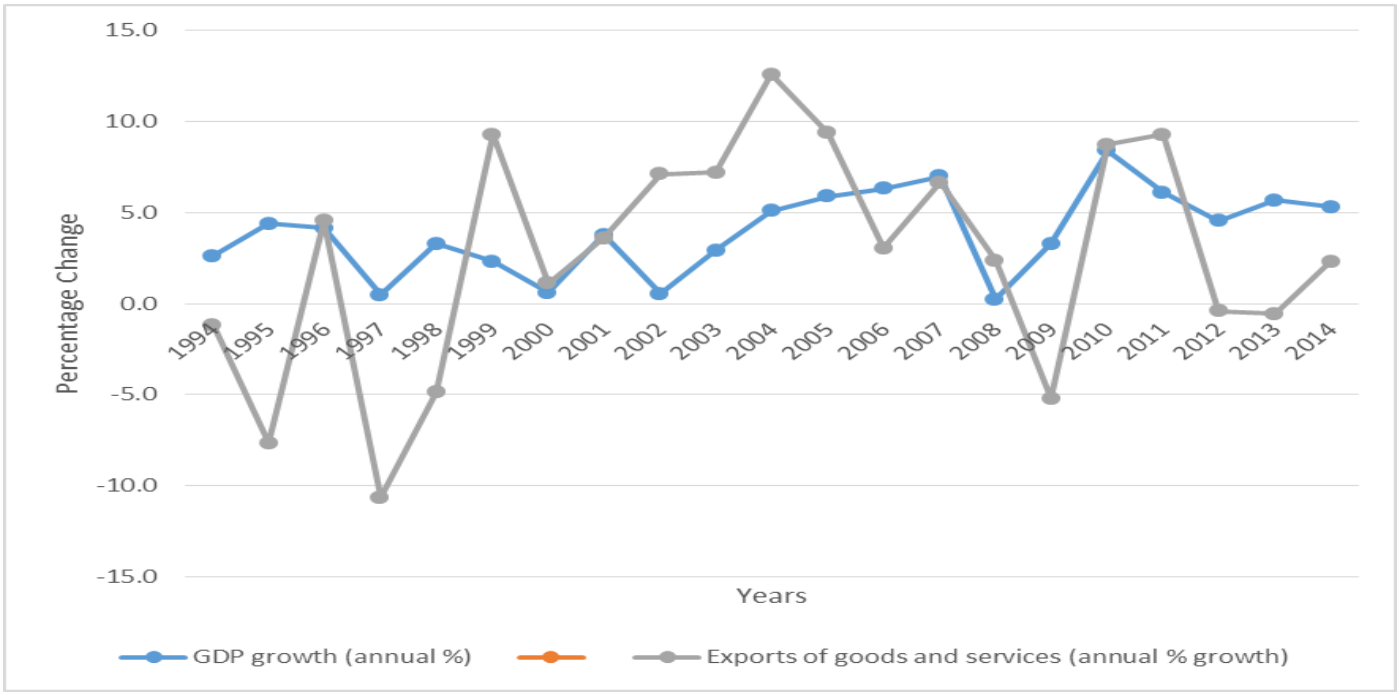

Figure 1

Kenya's Gross Domestic Product and Exports Yearly Growth Rates as a Percentage

Source: World Bank (2019)

The good growth trajectory was significantly impacted by the 2008 post-election violence that affected the tourism industry and had a negative effect on investor confidence (Finkel et al., 2012). The worldwide financial and

economic crisis of 2008 had a negative effect on exports and remittances to Kenya. These were some of the reasons why Kenya's Gross Domestic Product (GDP) grew by 1.7%. Between 2009 and 2010, the economy started to expand once more with the conclusion of the long-awaited peace accord between the warring parties (OECD et al., 2011).

Kenya was expected to achieve outstanding outcomes as one of the first EAC nations. This was expected to move Kenya from a low GDP nation to a middle GDP one. Figure 2.1 demonstrates how this was affected by repeated drops in GDP and exports around the time of Kenya's presidential elections in 1997, 2002, 2007, and 2012. During these election cycles, free flow of industrial exports from Kenya to Uganda was affected which was a move against trade liberalization (UNCTAD, 2015). Through the implementation of stringent monetary policies and the consolidation of its fiscal policies, the country was able to control and lower its high inflation rates to a single digit level. After pulling up from its downward trend in 2011, the Kenyan shilling was able to stabilize significantly (IMF, 2012). By taking these steps, Kenya strengthened its capacity to benefit from moves for trade liberalization with its trading partners in the area.

Kenya has had success in the negotiation of numerous trade agreements, both bilateral and regional, with organisations such as the WTO, COMESA, EPAs, EAC, and AGOA. All of them were done to increase Kenya's exports and through trade liberalization, expand the market for domestically manufactured goods (IMF, 2021). These trade agreements pushed Kenya to invest aggressively in transport infrastructure and export promotion, which would significantly increase Kenya's capacity to compete both regionally and globally and accelerate economic growth (IMF, 2012).

According to Omolo (2012), the pro-market, pro-liberalization, and pro-private sector measures of COMESA and other regional trading blocs have significantly increased trade in the region. Omolo's study (2012) did not completely address the impact of trade liberalisation, particularly on trade variables including import and export amounts, trade creation, welfare effects, and trade diversion. This study examines the importance of trade policy liberalisation.

2.2. COMESA

COMESA was formed in 1981 and now covers 40 per cent of Africa i.e. 12 million square kilometres out of 30 million square kilometres. The organization was seen by the African leaders as one of the many efforts to achieve Pan-Africanism during the post-independence era (COMESA, 2023). COMESA has 21 member countries which includes Zimbabwe, Tunisia, Uganda, Seychelles, Sudan, Mauritius, Somali, Rwanda, Comoros, Madagascar, Democratic Republic of the Congo (DRC), Zambia, Djibouti, Kenya, Malawi, Libya, Egypt, Swaziland, Ethiopia, Burundi and Eritrea (COMESA 2023). These nations played a significant role in the creation of the COMESA FTA and COMESA CU, the two agreements that are essential for the trade liberalisation talks.

2.3 COMESA Customs Union

On June 8, 2009, the COMESA CU protocol was introduced at Victoria Falls in Zimbabwe (COMESA, 2020). After two or more territories decided not to impose taxes and duties on the goods and services they exchanged, a customs union was created (COMESA, 2020). Each country that chooses to take part in this trade agreement will be required to impose a common external tariff (CET) on all goods that are exported to and imported into countries outside of their own.

According to COMESA (2020), all of its members have implemented a single Common External Tariff (CET) of twenty-five per cent on finished goods, ten per cent on intermediate goods and zero per cent on capital and raw materials. Despite Kenya's attempts to fully benefit from regional integration, the COMESA secretariat still has a lot of work to do to ensure that participating member states abide by the customs union agreements (Shayanowako, 2011). This study is important for examining COMESA's comparative advantages in accordance with the research objective. The results from this study will be used to offer appropriate policy recommendations that will help Kenya get the most out of COMESA CU.

2.4 Comparison between the COMESA CU and Kenya's Tariff System

The complicated structure of Kenya's tariff system indicates that the country has high tax and tariff rates. Kenyans basically pay double tax since they pay taxes to both the county and the national governments (OECD, 2011). This implies that Kenya's present tax laws need to be modified (Government of Kenya [GoK], 2022).

Kenya's tax and tariff system is more complex than the COMESA CU. This is clear given that only 634 of Kenya's total tariff/tax lines have zero-rated levies, making it one of the few countries with high tariff rates—some of which are more than 100 per cent (Nyanumba, 2023). This suggests that 81 per cent of the tariff lines have not been liberalized. This is also due to the fact that only 19 per cent of all tariff lines comply with the standard external tariff. Among its other neighbours, including those in the COMESA area and other landlocked nations in East Africa, Kenya receives a significant portion of its income through customs. This implies that a significant portion of Kenya's

government revenue comes from customs and imports (Majune et al., 2023).

This study examines the effects of the COMESA CU on Kenya. It assesses the impact of various trade policies on trade variables including trade-diversion, the volume and quality of exports and imports, and the subsequent welfare and financial implications on Kenya. The study's simulation modelling, which uses the WITS/SMART simulation approach to predict the effects of trade policy, is based on the year 2022. This is because the WITS/SMART software has access to the most recent data on Kenya and because this model uses databases and records of trade-related information, including those maintained by UNCTAD, the WTO, COMTRADE, and TRAINS (Shinyekwa et al., 2021).

In order to examine the COMESA CU, the WITS/SMART modelling approach is used. Raw materials tariff is at 0%, capital items are at 0%, intermediate products are at 10%, and finished products are at 25% according to the COMESA nomenclature. For the purposes of the COMESACU, Kenya imports all tariff lines from the COMESA member states duty-free (Magu, 2023). These tariffs and taxes from COMESA CU are integrated into the WITS/SMART model and safeguarded in the TRAINS records, together with empirical data from the Kenya Revenue and Customs Authority in 2022. The Custom Union differ significantly from the imposed tariff rates for 2022. This would subsequently make it possible for this research project to evaluate the impacts of COMESA CU on trade variables, such as the results of trade diversion, trade creation, imports, and exports, the effects on welfare creation, and revenue, which are among the study's objectives.

III. METHODOLOGY

The study examined the effects of COMESA CU commitments on Kenya using partial equilibrium (PE) and WITS/SMART simulation modelling. In particular, this study examined the effects of trade diversion on revenue, welfare, trade creation, exports and imports for a given period of time. The partial model was particularly selected because of its efficiency in estimating the tax/tariff impact of a single market on broken-down product lines (Lord, 2016). The base year for this study was 2022, with the harmonised code being 6.

3.1 WITS-SMART Model and Partial Equilibrium Model (PEM) Software

This study used the Laird and Yeats (1986) principle. This is due to the WITS-SMART model's ability to determine how various trade policies, such as tariffs, affect net trade effects, trade diversion, trade creation, tax revenue fluctuations, and variations in consumer surpluses.

i) Trade Creation

The effects of trade creation will be computed using Equation 1.1, which was extracted from Laird and Yeats (1986). This study adopted 'M_{ijk}' to imply the import demand function, 'i' refers to the supplier in country 'k';

$$M_{ijk} f(P_{ik}, P_{ij}, Y_j) \quad \text{1.1}$$

Equation 1.1 suggests that imports are contingent upon the products that are produced in addition to the prices of the countries that are importing and exporting. The complement export function was stated as follows:

$$X_{ijk} f(P_{ijk}) \quad \text{1.2}$$

Thus the trade equilibrium for the two nations in the PEM simulation model was presented in equation 1.3.

$$M_{ijk} = X_{ijk} \quad \text{1.3}$$

The domestic commodity prices for the customs union scenario were demonstrated by *i* in country *j* (Kenya) from country *k* which has the discrepancies in an *ad valorem* tax tariff as presented in equation 1.4:

$$M_{ijk} = X_{ijk}(1 + t_{ijk}) \quad \text{1.4}$$

The export proceeds that nation k attains are presented in equation 1.5.

$$R_{ijk} = X_{ijk} . P_{ijk} \quad \text{1.5}$$

Equation 1.4 and equation 1.6 illustrate the total derivative, which is the means by which Laird and Yeats (1986) presented the trade creation model.

$$dP_{ijk} = P_{ijk} . dt_{ijk} + (1 + t_{ijk}) . dp_{ijk} \quad \text{1.6}$$

Equation 1.7 which represents the elasticity of import demanded with respect to the national/internal price. its presented in 1.7.

$$\frac{dM_{ijk}}{M_{ijk}} = Em\left(\frac{dp_{ijk}}{p_{ijk}}\right) \quad \text{1.7}$$

The substitution of equations 1.4 and 1.6 to equation 1.7 helps in the derivation of equation 1.8 presented as;

$$\frac{dM_{ijk}}{M_{ijk}} = Em\left[\left(\frac{dt_{ijk}}{1+t_{ijk}}\right) + \frac{dp_{ijk}}{p_{ijk}}\right] \quad \text{1.8}$$

The price elasticity of the world export supply is stated and presented in equation 1.9

$$\frac{dp_{ijk}}{p_{ijk}} = \frac{dX_{ijk}}{X_{ijk}} \div EX = \frac{dX_{ijk}}{(X_{ijk}).EX} \quad \ldots\ldots 1.9$$

This equation will be transformed from equation 1.9 to equation 1.10 as presented.

$$\frac{dM_{ijk}}{M_{ijk}} = \frac{dX_{ijk}}{X_{ijk}}. \quad \ldots\ldots 1.10$$

The final substitution resulting from trade creation effects in equation 1.8 to equation 1.9 to equation 1.10 will finally be expressed in equation 1.11 as presented.

$$TC_{ijk} = M_{ijk} .E_X.\frac{dt_{ijk}}{(1+t_{ijk})(1+\frac{E_m}{E_X})} \quad \ldots\ldots 1.11$$

ii) Trade Diversion

The trade diversion effects are most likely to happen in a free trade agreement arrangement where the efficient manufacturers exterior to the customs union (CU) or Free Trade Arrangements (FTA) are dislodged by the inefficient manufacturers from the Customs Union through the protective high tariff rate charged on external producers. The formation of COMESA Customs Union brings about the reduction of the tax rates to 0% to COMESA CU member nations whereas tariff to the rest of the world remains in place. Equation 1.12 expresses the trade diversion equation, which is corroborated by Laird and Yeats (1986).

$$TD_{ijk} = \frac{M_{ijk}}{\sum M_{ijk}}.\sum M_{ijk} \sum M_{ijk} E_s \frac{d\frac{M_{ijk}}{M_{ijk}}.\frac{P_{ijk}}{P_{ijk}}}{M_{ijk}M_{jk}M_{ijk}.\frac{M_{ijk}}{P_{ijk}}} \quad \ldots\ldots 1.12$$

iii)Trade Expansion

The total trade effect is calculated by adding the effects of trade creation and diversion (Laird and Yeats, 1986). Laird and Yeats (1986) asserted that it is feasible to add results across a group of importers for a single or a group of commodities, as well as for a single source of supply or a group of suppliers.

iv) The Revenue Effect

In this section, simulation will be used to calculate the discrepancy between tax revenues lost and trade revenues received from new trading partners within the trading bloc. In principle, the tariff revenue is given by the product of the tax base (value of import) and the tariff rate. Thus the trade revenue effects is presented by equation 1.13.

$$dR_{ijk} = P_{ijk}(dX_{ijk}) + (X_{ijk})dP_{ijk} \ldots\ldots (1.13)$$

When the Left-hand side (LHS) of equation (1.13 is divided by dR_{ijk} and the right-hand side (RHS) of the same equation by$X_{ij}(P_{ijk})$ gives equation 1.14 (Laird and Yeats, 1986).

$$\frac{dR_{ijk}}{R_{ijk}} = \left(\frac{P_{ijk}(dx_{ijk})+X_{ijk}(dP_{ijk})}{P_{ijk}(X_{ijk})}\right) \ldots\ldots (1.14)$$

Simplifying and substituting the expression in equation (1.10) results to equation (1.15).

$$\frac{dR_{ijk}}{R_{ijk}} = \frac{dM_{ijk}}{M_{ijl}} + \frac{dP_{ijk}}{P_{ijk}}. \ldots\ldots (1.15)$$

This can also be written as:

$$\frac{dR_{ijk}}{R_{ijk}} = \left(\frac{dt_{ijk}}{1+t_{ijk}}\right).Em\left(\frac{1+Ex}{Ex-Em}\right) \ldots\ldots (1.16)$$

v) The Welfare Effect

The equation 1.13 was used to present the consumer benefits from the free trade agreement and customs union protocol leading to numerous varieties of goods and available and cheaper imports from the FTA and CU member nations. The equation 1.16 represents the simulation of welfare gains. The coefficient of 0.5 shows the average effects between the ad valorem happenings of the trade obstacles beforehand and afterward with the removal/reduction of trade barriers (Laird and Yeats, 1986)

$$W_{ijk} = 0.5(dt_{ijk}.dM_{ijk}) \ldots\ldots (1.17)$$

3.2. Robustness Tests and Sensitivity Analysis

SMART does not have a built-in sensitivity analysis thus the need to use sensitivity and robustness bounds to cure this limitation. As shown in table 1, this was impacted by the implementation of a 100 per cent tariff/tax deduction and a decrease to the HS-6 level for the base year 2022.

Table 1
Elasticity applied in Sensitivity Examination

Elasticity	Lower Bound	Base Case	Upper Bound	Worst Case
Substitution	0.5	1.44***	2	6
Export Supply	89.1	99	99**	99**
Import Demand *	2.7	1.5	3.3	6

Source: Mugano (2013), Tran (2020), Pasara (2021), Reserved as Infinite, ***

In contrast to COMESA CU, Kenya's tariff system is more complex. This is clear because Kenya is among the few countries that has high tariff rates—some of them are more than 100 per cent. The zero-rated tariff lines are 9.92 per cent of all tariff lines which means that 90.08 per cent of the tariff lines have not been liberalized.

IV. FINDINGS & DISCUSSIONS

4.1. Trade Creation

Following the implementation of the COMESA CET, it is necessary to evaluate the effects of trade diversification and creation on Kenya using the WITS/SMART model technique. Table 2 is an illustration of this.

Table 2
Trade creation COMESA CU (US$ Millions)

Partner's Name	Trade Creation
Raw Materials	93.75
Intermediate Goods	68.24
Finished Goods	40.39
Capital goods	108.12
Total	310.50

According to the study's findings from the WITS/SMART model simulations in Table 2, Kenya is anticipated to earn total trade-creation impacts of US$310.50 million from the COMESA CU procedure without experiencing any appreciable trade diversion consequences. This is highly advantageous for local consumers, as it suggests that bigger trade-creation profits would result from Kenya and other developing African countries believed that setting up regional free trade zones and implementing a customs union protocol would be an easy way to achieve economic prosperity. The OECD (2011) suggests that this might not have been the case because the expansion of regional commerce has been hampered by non-tariff barriers and infrastructure problems. The economic growth in Africa has been attributed by UNCTAD (2008) to trade liberalisation. This resulted from all tariffs and non-tariff obstacles being removed in free-trade zones (McGovern, 2015). Standardized transit fees allowed landlocked nations like Uganda, Burundi, Ethiopia, Zambia, Rwanda, and Zimbabwe to establish a transport route, which made it simpler for them to conduct business (World Bank, 2014; COMESA, 2014). An example of this is the yellow card motor insurance program enacted by COMESA member countries that has enhanced cross border trade (Deardorff, 2014).

As a country still recovering from the failures it had in the 1970s, Kenya faces hurdles as a result of commercial liberalization. In the late 1970s, Kenya faced a variety of economic challenges, including the dissolution of the EAC, a decline in commodity prices, and a quadrupling of oil prices (Mbole-Kariuki et al., 2014). As a result, the country implemented price stabilization and trade-liberalization initiatives. Despite the knowledge that emerging nations like Kenya lacked the competitiveness to compete, the IMF included trade liberalization measures in the packages it offered to these nations. The fact that trade liberalization led to catastrophic job losses, suffering, and entrenched poverty in Africa is significant (Mugano, 2013).

The fact that 9.92% of Kenya's tax lines are in the zero-rated system exacerbates the country's problem. This suggests that in the event that Kenya entered into a free trade agreement (FTA), 90.08% of the tariff lines would be liberalised. Additionally, it means that revenue losses would have a negative impact on the country. Furthermore, this presents a serious risk to the local sector's ability to compete. Kenya's tariff structure has a more intricate effect than the common external tariffs (CET) that would be imposed in a customs union. Mugano (2013) noted that Kenya faces the issue of overlapping membership which may have an impact on Zimbabwe's noodle bowl results. This only serves to exacerbate the situation. Examples of countries with overlapping memberships are Kenya, Uganda, Burundi, and Rwanda who are members of both the EAC and COMESA.

Kenya has ratified many trade agreements. These agreements include, the East African Community Customs Union (EACCU), African Growth Opportunity Act (AGOA), World Trade Organisation Free Trade Agreement (WTOFTA), Common Market for Eastern and Southern Africa Free Trade Agreement (COMESAFTA), Common Market for Eastern and Southern Africa Customs Union (COMESA CU), among other international agreements. In order to determine which trade agreements are profitable and how some agreements might be changed to become profitable, this study suggests that it is crucial to demonstrate the welfare, revenue, and trade effects of these agreements. This is especially true with regard to the Common Markets for Eastern and South Africa Common Market protocol.

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This study used the Laird and Yeats (1986) principle. This is due to the WITS-SMART model's ability to determine how various trade policies, such as tariffs, affect net trade effects, trade diversion, trade creation, tax revenue fluctuations, and variations in consumer surpluses.

The effects of trade creation will be computed using Equation 1.1, which was extracted from Laird and Yeats (1986). This study adopted 'M_{ijk}' to imply the import demand function, 'i' refers to the supplier in country 'k';

The trade diversion effects are most likely to happen in a free trade agreement arrangement where the efficient manufacturers exterior to the customs union (CU) or Free Trade Arrangements (FTA) are dislodged by the inefficient manufacturers from the Customs Union through the protective high tariff rate charged on external producers. The formation of COMESA Customs Union brings about the reduction of the tax rates to 0% to COMESA CU member nations whereas tariff to the rest of the world remains in place. Equation 1.12 expresses the trade diversion equation, which is corroborated by Laird and Yeats (1986).

The total trade effect is calculated by adding the effects of trade creation and diversion (Laird and Yeats, 1986). Laird and Yeats (1986) asserted that it is feasible to add results across a group of importers for a single or a group of commodities, as well as for a single source of supply or a group of suppliers.

In this section, simulation will be used to calculate the discrepancy between tax revenues lost and trade revenues received from new trading partners within the trading bloc. In principle, the tariff revenue is given by the product of the tax base (value of import) and the tariff rate. Thus the trade revenue effects is presented by equation 1.13.

The equation 1.13 was used to present the consumer benefits from the free trade agreement and customs union protocol leading to numerous varieties of goods and available and cheaper imports from the FTA and CU member nations. The equation 1.16 represents the simulation of welfare gains. The coefficient of 0.5 shows the average effects between the ad valorem happenings of the trade obstacles beforehand and afterward with the removal/reduction of trade

barriers (Laird and Yeats, 1986)

SMART does not have a built-in sensitivity analysis thus the need to use sensitivity and robustness bounds to cure this limitation. As shown in table 1.1, this was impacted by the implementation of a 100 per cent tariff/tax deduction and a decrease to the HS-6 level for the base year 2022.

In contrast to COMESA CU, Kenya's tariff system is more complex. This is clear because Kenya is among the few countries that has high tariff rates—some of them are more than 100 per cent. The zero-rated tariff lines are 9.92 per cent of all tariff lines which means that 90.08 per cent of the tariff lines have not been liberalized.

Following the implementation of the COMESA CET, it is necessary to evaluate the effects of trade diversification and creation on Kenya using the WITS/SMART model technique. Table 2 is an illustration of this.

According to the study's findings from the WITS/SMART model simulations in Table 2, Kenya is anticipated to earn total trade-creation impacts of US$310.50 million from the COMESA CU procedure without experiencing any appreciable trade diversion consequences. This is highly advantageous for local consumers, as it suggests that bigger trade-creation profits and welfare. The Kenyan industries that produce the products listed in Table 3 are probably going to be impacted by the COMESA CU's effect on trade creation, improved product quality and lower pricing. If Kenya embraces the COMESA CU protocol, Kenyan consumers will enjoy improved welfare. The Kenyan industries that produce the products listed in table 3 are probably going to be impacted by the COMESA CU's effect on trade creation.

Table 3

Goods with the Largest Trade-Creation (US$ Millions)

HS Product Code	Product Account	Trade Creation Effect
17	Sugars and sugar confectionery	13.56
10	Cereals	12.96
24	Tobacco and its manufactured substitutes	11.73

Sugar, cereals, and tobacco, with corresponding market values of US$13.56 million, US$12.96 million, and US$11.73 million, are the goods with the biggest trade creation effects. These results are in line with what the ex-ante studies found. This suggests that Kenyan consumers are anticipating better economic times based on the effect of trade. These results are similar to those of Tran & Tran (2023), Mugano et al. (2013) and Cernat (2003) who found that the COMESA CU trade agreement has positive benefits on trade creation.

4.2. The Revenue Effect in COMESA CU

Every country, including Kenya that engages in trade-liberalization activities has as its main objective to boost revenues through other benefits that are also highly important and cannot be disregarded (Randrianarisoa, 2021). According to Randrianarisoa, (2021), it is important to recognize that the primary objectives of taxation are to generate income, which is essential for maintaining government operations, while analysing revenue consequences. This begs the question of whether trade liberalization has benefited the government by increasing tax revenue, therefore enabling it to pay its debts, or whether it has undermined this idea. For this reason, the study's evaluation of the COMESA CU's revenue effects on Kenya employed the WITS/SMART model technique. The revenue impacts of COMESA CU on Kenya are seen in Table 4.

Table 4

Product Revenue effects (US$ Millions) from COMESA CU on Kenya

Product Category	Revenue Effect
Finished Goods	-71.41
Intermediate Goods	-46.80
Capital goods	-113.34
Raw Material	-96.42
Total	-327.97

It was mentioned that if Kenya implements the COMESA CU accords, it will miss out on $327.97 million in customs revenues. Table 5 lists the goods and commodities that result in the most losses for the Kenya.

Table 5

Products with the Largest Losses in COMESA CU (US Dollars Millions)

HS Product Code	Goods Description	Revenue Loss
10	Cereals	-114.67
17	Sugars and sugar confectionery	-32.96
63	Made-up textile sets	-8.59
87	Vehicles parts and accessories	-8.49

Cereals are thought to have contributed a loss of US$114.67 million. The next item is sugar and sugar-based confections, which are worth US$32.96 million. The third category of goods includes fabricated textile items, used garments, used textile items, and rags totalling US$8.59 million. Other than railroad track or tramline rolling stock, the loss worth of autos is US$8.49 million, which includes components and accessories.

It is important to emphasize that raw materials, which are tax-free under COMESA tariff lines, account for the three largest contributors to losses. Due to competition from nearby nations that produce comparable goods, Kenya suffers significant import duty losses (Magu, 2023). The local producers would also suffer because other COMESA nations' products would be in competition with their own.

The findings of Makochekanwa's (2012) study, which evaluated the impact of Zimbabwe's membership in the East African Community (EAC), COMESA, and SADC, provide evidence in favour of this study. Makochekanwa discovered that if Zimbabwe joined the tripartite accord, it would probably suffer losses in the tune of US$71.2 million in customs profits. Furthermore, it was mentioned that adopting the COMESA/SADC/EAC resulted in a substantial loss of 19.5% of the 2012 customs income and 2.5% of the total revenue collected in the same year.

4.3. The Consumer-Welfare Effect

The term "consumer-welfare effects" touches on the benefits people personally get from using products and services. According to Joo (2023), determining one's level of satisfaction with given prices and incomes is how one determines their level of consumer welfare. This brings up the issue that determining the precise amount of consumer welfare elements necessitates proof of individual preferences.

Table 6

Consumer Welfare Effects of COMESA CU on Kenya (US$ Millions).

Product category	Welfare in US$ million
Capital goods	7.93
Raw materials	13.39
Finished goods	21.69
Intermediate Goods	13.25
TOTAL	56.27

Based on Table 6, this study aims to determine if Kenyan customers experienced increased satisfaction as a result of cheaper prices or higher-quality products following the implementation of the COMESA CU agreement. The degree of trade creation vs trade diversion effect directly relates to consumer satisfaction levels. Table 6 shows the welfare impact levels and their US dollar values relative to the GDP in 2015.

Based on the projections presented in Table 6, Kenya is expected to have a consumer welfare impact of US$56.27 million as a result of the COMESA CU agreement. Though acknowledging the welfare effect is crucial, its percentage of Kenya's US$60.94 billion GDP in 2014 is less than 0.001 percent, making it extremely insignificant.

Consumer welfare gains of US$7.93 million is anticipated for capital goods, followed by US$13.39 million for raw materials. The third item is finished goods, which have a US$21.69 million impact on consumer welfare, followed by intermediate goods, which have a US$13.25 million impact.

These results are significant for capital goods because they show the expected increase in consumer welfare (Table 6). After import tariffs were eliminated, there was an improvement in consumer welfare, which led to more consumer savings. When the tariff is lowered to 25%, finished goods consumer costs, which were great due to extraordinary import tariffs preceding to the creation of the customs union pact, significantly decreased.

These findings are consistent with Mugano et al.'s (2013) evaluation of COMESA CU's impact on Zimbabwe. Comparable to those in this research, their findings show welfare benefits. Kenya is expected to receive welfare benefits of US$56.27 million, while Zimbabwe is anticipated to see welfare benefits of US$15.649 million. Though observed as encouraging, these developments are negligible when likened to the GDP of the country for the preceding five years.

According to Makochekanwa's (2012) analysis of the COMESA/SADC/EAC tripartite agreement's impacts, Zimbabwe will benefit from a welfare advantage to the tune of US$14.4 million. This is consistent with the study's findings.

4.4. The Influence of COMESA CU on Kenyan Exports

Most developed and developing nations have adopted trade liberalization to open their markets to nations outside of the partaking associate countries (Deardorff, 2014). This study looked at how exports affected Kenya, after Kenya opened its borders to the 21 COMESA members that are parties to the COMESA CU agreements.

This study examines whether Kenya's export challenges have been improved or deteriorated as a result of entering the COMESA CU via the WITS/SMART model. The export data for Kenya is presented in Table 7 and was obtained using the WITS/SMART simulation approach. Based on export data for intermediate goods, finished goods, capital goods, and raw materials, the table shows the overall benefits of trade liberalization on Kenya.

Table 7

Impact of COMESA CU on Kenyan Exports (US$ Millions)

Product Category	Exports before	Exports after	Change in exports
Capital Goods	3.54	2.90	-0.64
Raw material	89.78	85.48	-4.30
Intermediate goods	157.23	156.36	-0.87
Finished goods	165.63	149.40	-16.23
Total	416.19	394.14	-22.04

Kenya's export volumes will most likely decline as an effect of joining the COMESA CU procedure, conferring to the conclusions of the WITS/SMART model approach. Table 7 shows that when the customs-union protocol was put into place, the total amount would decrease from US$416.19 million to US$394.14 million. This causes a predicted decrease in exports of these items of US$22.04 million.

4.5. The Impact of COMESA CU on Kenyan Imports

It is unclear how the COMESA CU affects imports into Kenya. Because of this, another goal of this study was to estimate how the COMESA CU might affect Kenyan imports using the WITS/SMART model.

Table 8

The Impact of COMESA CU on Kenyan Imports (US$ Millions of Dollars).

Product category	Imports before	Imports after	Import change
Raw material	1,720.42	1,814.17	93.75
Intermediate goods	2,936.68	3,004.92	68.24
Finished goods	3,779.08	3,819.47	40.39
Capital goods	2,655.19	2,763.31	108.12
Total	11,091.37	11,401.87	310.50

It is crucial to convey that, as Table 8 shows, Kenyan imports are anticipated to increase. The data additionally demonstrates that Kenya's imports grew from US$11.091 billion prior to the CU to US$11.402 billion following entry into the COMESA customs union, a US$310.50 million difference. Table 8 indicates that the capital goods accounted for the highest shift in imports, amounting to US$108.12 million. Raw materials came in second, with US$93.75 million, intermediate products at US$68.24 million, and completed goods at US$40.39 million.

An examination of Kenya's tariff system reveals that, excluding non-tariff measures, tariffs above 25 per cent represent a sizeable portion of the country's total revenue. Consequently, it was decided to apply the COMESA standard tariff nomenclature for capital goods, which suggests lowering these tariff structures to 0 per cent. It is projected that this will lead to a decrease in product costs, which will encourage imports because customers will start saving more money, which they will then use to buy more imports.

These results are supported by a comparable study carried out in Kenya and Tanzania by Majune et al. (2023). They used the WITS/SMART model method to assess the EACCU procedures effects on member countries. The results indicated an increase in import volume in Kenya and Tanzania will be greatly impacted by the EAC common market mechanism.

Bertola and Faini (1990) carried out a study on the effects of trade openness on the import capacities of third-

world countries in 1990. They aimed to ascertain the shift in import volume following the removal of restrictions pertaining to tariffs and non-tariff (non-tax). When examining Morocco, they found that quantifiable barriers significantly affected the amount of imports as well as the population's degree of economic welfare. This supports the current study's results that imports rise in tandem with trade liberalization under the COMESA CU due to greater consumer welfare brought on by lower costs and higher product quality.

V. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusions

5.1.1 Trade creation

Efficient producers in the COMESA member nations would replace Kenya's inefficient producers. This suggests that Kenyan consumers will benefit from higher-quality products at lower prices. Kenyan producers could suffer as a result, as consumers would turn to more productive producers in the region (other COMESA nations) for their goods. Additionally, as more producers would enter the market and consequently increase the number of suppliers of these goods, national monopolies would be destroyed. Producers in Kenya and the other COMESA nations can present fierce rivalry. When compared to competing enterprises in the COMESA area, Kenyan businesses may be required to increase on their efficiency in order to create goods that can compete in the region.

Trade diversion would occur when the less effective competing manufacturers from the COMESA nations in the Customs Union would replace the more efficient producers from outside the COMESA CU protocol. Imports from the countries that have ratified the CU convention would lead Kenya to lose out on customs revenue. The most efficient manufacturers would be locked out of the market since their items would cost more after the CET was implemented for all dealers outside the Customs Union.

5.1.2 The Revenue Effect in COMESA CU

According to the results of the WITS/SMART simulation calculations, Kenya's participation in the COMESA CU agreements is predicted to result in a total loss of fiscal revenue to the tune of on $327.97 million.

5.1.3 The Consumer-Welfare Effect

Kenya is anticipated to have a user well-being impact of US$56.27 million as an effect of the COMESA CU agreement. Though acknowledging the welfare effect is crucial, its percentage of Kenya's US$60.94 billion GDP in 2014 is immaterial. After import tariffs were eliminated, there was an improvement in consumer welfare on capital goods which led to more consumer savings.

5.1.4 The Influence of COMESA CU on Kenyan Exports

Kenya's export volumes will most likely decline as a result of joining the COMESA CU procedure, according to the conclusions of the WITS/SMART model approach. When the CU procedures was put into place, the total amount would decrease from US$416.19 million to US$394.14 million. This causes a predicted decrease in exports of these items of US$22.04 million.

One possible explanation for the decline in export volumes following the COMESA CU is the increase in the cost of intermediate products utilized in production. The intermediate rates should have been increased to 10% when Kenya joined the COMESA CU. This is owing to the fact that the majority of items which are intermediate goods were imported into Kenya under the COMESA CU agreement were categorized in a tax bracket that ranged from 0% to 5%, making up 35.3% of all tariff lines. (COMESA, 2023).

As imports into Kenya rise, it is anticipated that the export of intermediary commodities, which account for most of Kenya's exports, would become less desirable. This study confirms the results of Mugano et al. (2013), who assessed Zimbabwe's impact on the COMESA CU procedure. A US$16.355 million drop in exports was observed, going from US$826.130 million prior to the COMESA customs union procedures to US$809.775 million following the COMESA CU. Consistent with this study's conclusions, a rise in the usage of intermediate goods in production is cited as the reason for the export volume reduction. Research carried out in Uganda by Cernat (2003) found similar outcomes. Because Uganda's MFN tariff rates was lesser than the CU, according to Pasara (2021), trying to restructure them hampered the nation's attractiveness as the cost of production increased due to the high input cost.

It is important to remember that the majority of Kenya's exports, which account for 61.36% of the country's total exports under the COMESA CU agreement, are raw semi-finished commodities (intermediate goods) and materials. Given the inadequate income elasticity of the basic and natural goods exported and the insufficient export earnings due to volatile prices, Kenya should be concerned about this outcome.

5.1.5 The Impact of COMESA CU on Kenyan Imports

All of the trading partners in the economic bloc have been deeply divided over how Kenya's import performance has been impacted by trade liberalization and the COMESA CU. The CU's effective tax and tariff harmonization has two effects on Kenyan imports. The COMESA (2023) anticipates tariff lines would be lowered or softened; imports are expected to benefit from this. Furthermore, certain tax lines need to be orientated higher, which is anticipated to negatively impact Kenyan imports (Majune et al., 2023).

Analysis of Kenya's tariff structure reveals that, excluding non-tariff measures, tariffs above 25 per cent represent a sizeable portion of the country's total revenue. Consequently, it was decided to apply the COMESA standard tariff nomenclature for capital goods, which suggests lowering these tariff structures to 0 per cent. It is projected that this will lead to a decrease in product costs, which will encourage imports because customers will start saving more money, which they will then use to buy more imports.

These results are supported by a comparable study carried out in Kenya and Tanzania by Majune et al. (2023). They used the WITS/SMART model to assess the EACCU procedures effects on states members. Their findings indicated that the increase in import volume in Kenya and Tanzania will be greatly impacted by the EAC common market mechanism.

5.2 Recommendations

The research recommends that export-boosting actions be done, including bolstering zones for export processing, offering export subsidies, developing supply-side infrastructure, offering trade financing, and enhancing export-supporting institutions. Kenya and other developing countries now have the ability to implement policies that will make sure they benefit the most from the various regional trade agreements thanks to the findings of this study.

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