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The Impact of Single Customs Territory Framework on Kenyan Customs Revenue

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Abstract

Single Customs Territory (SCT) is a trade facilitation framework to enhance intra East African Communities (EAC) trade. The implementation of a Single Customs Territory (SCT) framework in Kenya is meant to ease movement of goods and cut cost and time. This is done by harmonization and simplification of customs procedures, documentation and automation of customs systems. Introduction of SCT framework in 2013 has facilitated trade flows among the EAC partner states: Kenya, Tanzania, Uganda, Rwanda, Burundi and South Sudan (Kamau A. and Odongo M.2020). Some researchers have investigated the effectiveness of SCT in a given geographical area. A few of the researchers have analyzed the impact of SCT in the East African Community. Nevertheless, little is known on its impact on the customs revenue generated in Kenya. The main objective of this study is to establish the impact of Single Customs Territory framework on Kenyan customs revenue. The specific objects were to determine the effect of SCT on imports volumes and value in Kenya and exports volumes and value in Kenya. This was captured in a panel econometric model using customs data in Kenya Revenue Authority (KRA) spanning from the year 2010 to the year 2020. To determine the impact of SCT framework on customs revenue in Kenya, this study utilized regression discontinuity (RD) and difference-in-differences (DiD) study designs. The regression discontinuity and difference in difference designs are quasi experimental approaches. These methods are the most effective in estimating the impact of policy reforms when implemented. RD measures the effect of the size of the discontinuity in regression. The regression discontinuity (RD) and difference-in-differences (DiD) study model analyzed the trend before and after the introduction of the SCT framework. To determine whether SCT really facilitates trade, a gravity model was used to estimate the effect of the framework on imports and exports from countries trading with Kenya. The results show that import values (CIF) increased by an average of Kshs. 1.104 while import volumes increased by an average of Kshs. 1.062 following the introduction of SCT framework. However, introduction of SCT framework led to a decline of exports values (FOB) by an average of Ksh. 2.128 and export volumes by an average of Ksh.1.917.
Keywords: single customs territory, customs

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1. Background

Single Customs Territory (SCT) is the consolidation level of the Customs Union (CU) with the aim of allowing free circulation of goods with minimum internal customs border controls, enhance trade facilitation by eliminating trade barriers and reduce cost of doing business and promote intra trade and investment (EAC 2014). Single Customs territory enhances trade facilitation by eliminating trade barriers, reduce the cost of doing business and promote intra trade and investment. The adoption of the SCT framework in November 2013 based on the destination model paved way to the implementation of the East African Community (EAC) Single Customs Territory (SCT) in January 2014. Goods are cleared upon arrival at the first point of entry and released from the first point of entry. SCT covers all customs regimes for direct home-use, warehousing, transit, export, intra-EAC trade and temporary imports. Customs officers of destination countries are deployed at ports of first point entry.

SCT has contributed to internal border control, use of a single bond across the region, use of One Stop Border Posts (OSBPs) which is now a regional law, interconnectivity of customs systems- interface, reduction of non-tariff barriers, change management, inter agency coordination- single window, political goodwill and support and corridor based approach. The evolution of a more integrated customs programs such as regional electronic cargo tracking system (RECTS) and interconnectivity of customs systems have a positive impact on EAC trade. This has reduced incidences of diversion of goods and the turn round time on movement of cargo by about 40%. In addition, multiple use of documentation has reduced from an average of 5 to 7 times to once or twice along the corridors. Also transport costs have reduced to about 20% due to the increased turnaround time on movement of goods particularly petroleum products. According to EAC report, intra trade has increased from 2 billion in 2005 to 6 billion in 2014 and thus improved predictability and planning in business (EAC 2014).

Despite that SCT has not been fully successful due to different levels of automation of systems by agencies involved in clearance of goods, lack of robust and integrated customs information technology platforms, security threats that cause reversals on risk management application, infrastructure constraints and resistance to change.

1.2 Background of the study

At the regional level, EAC countries: Kenya, Uganda, Tanzania, Rwanda and Burundi started implementing the SCT framework from January 2014. This has facilitated trade across the region by harmonizing and simplifying internal regulatory procedures and documentation to ensure timely release of goods across borders (EAC 2014). Following the implementation of SCT framework, export time in EAC countries has dropped from an average of 28 days in 2013 to about 3 days in 2019, with Kenya recording the border compliance time for clearance of export goods on average 16 hours (World Bank 2020b). Kenya remains the key player in the EAC region, accounting for a larger share of total intra-EAC exports. However, her exports to the region have declined over the years with its share declining to 41.7 per cent (USD 1,146 million) in 2018 from 50.5 per cent (USD 1,593 million) in 2012. Kenya's exports are mainly to Tanzania and Uganda (EAC 2018).

1.3 Statement of the problem

Single Customs Territory (SCT) is a trade facilitation framework to enhance intra East African Communities (EAC) trade. The SCT framework was adopted in November 2013 based on the destination model and thereafter its implementation in January 2014. Following the implementation of SCT framework, export time in EAC countries has dropped from an average of 28 days in 2013 to about 3 days in 2019, with Kenya recording the border compliance time for clearance of export goods on average 16 hours (World Bank 2020b). However, no study had been done to establish the impact of SCT framework on customs revenue in Kenya. The volumes and value of imports into Kenya and volumes and value of exports to partner states pre and post introduction of SCT framework were still unknown. This study breached this gap.

1.4 Research Objectives

1.4.1 General Objective

This study aimed to establish the effect of single customs territory framework on Kenyan customs revenue.

1.4.2 Specific objectives

The specific objectives for this study were: -

1. Determine the impact of single customs territory framework on imports volumes in Kenya
2. Determine the impact of single customs territory framework on imports value in Kenya
3. Determine the impact of single customs territory framework on exports volumes in Kenya
4. Determine the impact of single customs territory framework on exports value in Kenya.

2. Literature Review

This section reviewed theoretical and empirical literature on trade flows, specifically on trade facilitation reforms and their impact on import flows. The theoretical review highlighted various theories that have been used to measure the impact of trade reforms to trade.

2.2 Theoretical review

2.2.1. Mercantilisms doctrine

The theoretical underpinnings of TBTs, are protectionist theories. Protectionist theories are based on mercantilists' trade doctrine of 16th to 18th century which promoted government interventions to boost the accumulation of species through trade. Mercantilists argued that the best way for a nation to enjoy faster growth was to export more than it

imported. The revenue would be a real inflow of gold. Since the amount of gold was fixed in the short run, not all nations could have such inflows simultaneously and gains from trade might be enjoyed only at the expense of the other nations. That is why mercantilist advocated for import restrictions and export promotion. (Mitchell and Dorfman, 1967).

Mercantilists' views were challenged by Adam Smith who advocated for free trade based on absolute advantages of nations. He proved that the advantages of international division of labor and specialization would be shared by all nations who may benefit simultaneously from free international trade. Thus, when nations specialize in industries where they have absolute factor advantages, gains from trade come to every nation and not at the expense of others and there is no need for government intervention that only deteriorates allocation of resources and productivity (Mitchell and Dorfman, 1967).

2.2.2. Partial equilibrium model

A partial equilibrium model based on single market approach is more precise in analyzing the effect of a TBT on the economy using a quota for illustration. Based on this single market approach, one can assess the effect of trade restrictions at the border (Fugazza, 2013). An analysis done on quotas can be extrapolated to make similar analysis for non-tariff measures using demand and supply diagram for imports

Looking at the quotas, an introduction of a quota limits import levels at qA1 as shown in figure 1. This causes a rise in the imports domestic price to pAD1, a price above world price a pA. This causes the world price of the imported good to fall to pA1. In a case where the quota is set above the level of free trade, the quota has no effect. Non-tariff measures could have similar effects but also are bound to generate other various economic effects. The cost-price raising effect of a TBT is due to compliance cost which changes the fixed cost of production from producers' point of view. Fixed cost manifests in upgrading of equipment, operations, obtaining certificate, quality checks and altering production strategies, (Otsuki et al 2001). This is the trade barrier effect of a TBT.

Fig 2.1 Partial equilibrium model

However, quality standards may signal high quality of imports via information disclosure e.g trademarks, labeling requirements etc. leading to an increase in imports. This demand enhancement effect of a TBT is also known as standards catalyst argument, (Fugazza 2013, Henson & Humprey, 2008,Maertens &Swinney 2009).

2.2.3 Gravity model

One of the models frequently used to measure the presence of non-tariff barriers is the gravity model. The trade gravity framework is cited by Roy and Rayhan, (2013) as one of the most successful models in empirical economics so far. In the basic form of the gravity equation, trade between a pair of countries is modeled as an increasing function of their sizes and a decreasing function of the distance between the two countries. This simple framework explains most of the variations in observed volumes of trade flows. For these reasons the gravity model has become one of the standard empirical tools for analyzing trade patterns.

The model assesses the impact of different applications of policy to trade flows. This model originates from the Newtonian physics notion and was first applied in international trade by Tinbergen, (1962). Newton's gravity law in mechanics states that two bodies attract each other proportionally to the product of each body's mass (in kilograms) divided by the square of the distance between their respective centers of gravity (in meters).

The gravity model for trade mirrors the Newton's gravity law. The analogy is as follows: the trade flow between two countries is proportional to the product of each country's economic mass, generally measured by GDP, each to the power of quantities to be determined, divided by the distance between the countries respective economic centers of gravity, generally their capitals, raised to the power of another quantity to be determined Achrya, (2013) and Roy and Rayhan, (2012).

The gravity model is occasionally extended by researchers to include gravity variables such as distance, contiguity, official language, colonial relationship, common colonizer and dummy variables capturing shared trade blocks and technical barriers of trade, 2008 including (Chaney et al 2008).

The estamatable version of the model is expressed as:

Where Tij is trade volume, i represents origin country, j represents destination country, y is real GDP and Dij is the distance between the two trading countries capital city. It is normally used as a proxy for cost of transportation. On the other hand, B0, B1, B2 and B3 are parameters to be estimated. The empirical form of the model is normally linearized to include policy variables.

2.3 Empirical Literature Review

The impact of trade facilitation on trade movements has been widely analysed in the trade literature. Empirical literature suggests, in most cases, a positive impact of increased trade flows resulting from improved trade facilitation regardless of the measure used for trade facilitation (Darku 2009; Felipe and Kumar 2010; Fuenzalida-O'Shee et al. 2018; Mahona and Mjema 2014; Oparanya et al. 2019; Perez and Wilson 2010; Shinyekwa and Othieno 2013; Spence and Karingi 2011). In these studies, extended versions of gravity models are used for analysing various impacts and outcomes of trade facilitation on trade movements in emerging markets, intra-country trade within a region, and a country's international trade with other countries in the world. In the case of emerging markets in Central Asia, Felipe and Kumar (2010) found that trade flows increased by margins of 28–63 per cent, whereas intra-regional trade increased by 100 per cent, with improved trade facilitation. Fuenzalida-O'Shee et al. (2018) showed that excessive documentation requirements

and high container costs for exports hindered trade in Latin America.

In assessing intra-African trade, studies have found that trade can increase significantly if the impediments to trade, such as inadequate infrastructure, excessive time wasted at the border, and an inadequate regulatory environment, are addressed. Further, this would greatly lower transport and border costs for trading, thus increasing trade flows and revenues (Gad 2009; Limao and Venables 2001; Longo and Sekkat 2004; Perez and Wilson 2008). Examples of border costs cited in the studies include time spent at the border points, for example due to breakdown of the processing systems or lack of access to the internet to transmit information, too much documentation, and a lack of proper inspection procedures. Oparanya et al. (2019) assessed bilateral trade flows between the countries in the EAC free trade area and found that factors such as the corruption index, diaspora remittances, contiguity, and country size affected trade positively. Shinyekwa and Othieno, (2013) assessed the impact of entering into a regional trade agreement (RTA) in terms of whether it facilitates trade or diverts trade to other regions. They concluded that it is beneficial for countries to be in a RTA as it has trade creation benefits.

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

2.4 Conceptual framework

Figure 2.2: Conceptual Framework

3. Research Methodology

This chapter shall highlight in brief the methodology that shall be used in conducting the study. It includes the research design, data source, instruments, econometric model, analysis and presentation.

3.2 Research design

This study will use descriptive, desk top and causal research designs. The study will apply a panel data. The design will allow for individual specific variables therefore providing for heterogeneity that is normally related to individual variable. The design shall use a combination of time series cross sectional observations and due to this aspect, it is normally considered one of the most effective designs in the study of causation, other than pure random experiment (Stimson, 1985). A regression discontinuity (RD) and difference-in-differences (DiD) study designs will be used. The regression discontinuity and difference in difference designs are quasi experimental approaches. These methods are the most effective in estimating the impact of policy reforms when implemented. RD measures the effect of the size of the discontinuity in regression. The regression discontinuity (RD) and difference-in-differences (DiD) study model will look at the SCT framework reform. This design was adopted by Okara and Kongo (2019) in their research on the impact of Non-Technical barriers of Trade on Import flows in Kenya. In order to determine whether SCT really facilitates trade, a gravity model will be used to estimate the effect of the framework on imports and exports from countries trading with Kenya.

3.3 Data source

The study will use secondary data from customs department in Kenya Revenue Authority (KRA). A monthly panel data set spanning 2010 to 2019 will be used to estimate the effect of SCT framework on imports and exports in Kenya. This will be captured in a panel econometric model. It will also review various reports from customs department in KRA to identify key issues on challenges, improvements and recommendations.

3.4 Data analysis and presentation

Preliminary analysis on measures of central tendency and measures of dispersion will be presented in a table. Data trends will be presented on graphs and diagrams. An empirical panel econometric model capturing the effect of SCT on imports and exports from specific countries will also be estimated using STATA econometric software.

3.5 Econometric model specification

Implementation of SCT aims to facilitate trade flows. Therefore, to capture the effect of the framework on Kenyan imports and exports from partner states, the study will estimate a modified gravity model with both gravity variables and additional policy dummies.

The basic gravity model is captured as

Applying natural logarithm transformation and modification, we obtain equations 2 and 3 below

Where β0 is the intercept of the model, β1, β2,… β6 are corresponding coefficients to be estimated, lnyit is natural logarithm of Kenya Real GDP at time t, lnyjt natural logarithm of real GDP of Kenya trading partners at time t, lnDij is natural logarithm of the distance between Nairobi and capital cities of Kenya's trading partners, which is time invariant while SCTdi is a dummy variable capturing the effect of SCT with 0 and 1 for pre and post SCT periods respectively while Vij is value of imports to Kenya. εit is the idiosyncratic error term while Xij and Mij are exports and imports from country i to country j.

3.6 Econometric tests

3.61 Hausman Test

Hausman test will be run to decide between fixed or random effects. The null hypothesis is that the preferred model is random effects vs. the alternative the fixed effects.

3.62 Unit root test

The Dickey-Fuller test will be used to check for stochastic trends. The null hypothesis is that the series has a unit root (i.e. non-stationary). If unit root is present you can take the first difference of the variable.

3.63 Heteroskedasticity test

The null hypothesis for the Breusch-Pagan test is homoskedasticity.

3.64 Serial correlation

Serial correlation tests apply to macro panels with long time series. The null is that there is no serial correlation.

3.65 Breusch-Pagan Lagrange multiplier (LM)

The LM test helps you decide between a random effects regression and a simple OLS regression. The null hypothesis in the LM test is that variances across entities is zero. This is no significant difference across units (i.e. no panel effect).

4. Findings And Discussions

This section presents the study findings on the effect of single customs territory framework on Kenyan customs revenue. The analysis was conducted for the following measures of imports and exports: import value (CIF), import volume (based on quantity), export value (FOB) and export volume (based on quantity).

Total imports and exports were categorized into those subjected to SCT framework and those exempted from the framework. Goods under chapter were exempted from SCT framework. Most of these goods are cleared through the direct assessment method.

This study sought to discover the impact of the introduction of SCT framework on both imports and exports values and volumes on Kenyan customs revenue. To understand the effect on the import value following the introduction of SCT framework, the study achieved this by plotting the normalized imports flows as shown in table 1 below:

Table 1: Regression on import values

Further analysis was done to understand the impact of SCT framework on the import volumes. The quantities of goods imported were analyzed as shown in table 2.

Table 2: Regression on import volumes

To understand the effect on the export value following the introduction of SCT framework, the study achieved this by plotting the normalized export flows as shown in table 3 below:

Table 3: Regression on export values

Further analysis was done to understand the impact of SCT framework on the export volumes. The quantities of goods exported were analyzed as shown in table 4.

Table 4: Regression on export volumes

Normalization removes scale effects and thus making the values of various categories comparable. Using the normalized values of imports and exports, it is clear that both imports and exports values increased following the introduction of SCT framework in January, 2014 that is the trends after the dotted vertical line. This increase was driven by the increase in both imports and exports values of goods subjected to SCT framework. The increase in imports and exports in the period preceding the introduction of SCT framework might have occurred as importers and exporters did their imports and exports respectively in anticipation of the introduction of SCT framework. This is more plausible if importers and exporters expected SCT framework to be a constraint in the importation and exportation processes respectively. Thus, a key estimation issue emerged: in the period preceding the introduction of SCT framework, increased imports and exports in anticipation of the introduction of SCT framework.

Between 2017 and 2020, there is a decline in both import and export values and volumes. This can be attributed to other factors like general elections held in Kenya in 2017, fluctuations of the exchange rates and international oil prices.

Model Assumption

A key assumption for the difference in difference was that during this period, the macroeconomic variables such as GDP growth, inflation and interest rates and exchange rates affect all the imported and exported goods equally.

4.2 Difference in Differences Estimation Results

Difference in differences analysis was applied to the four measures that is import value (CIF), import volume (based on quantity), export value (FOB) and export volume (based on quantity). The table 5 presents the results of these four outcome variables.

Table 5: Difference in differences regression results

Table 5 presents regression results for the four outcome variables. Column 2 presents the regression results for total import CIF values. The results show that the introduction of SCT framework led to an increase of imports by an average of Kshs. 1.104. Column 3 show that the import volumes

increased by an average of Kshs. 1.062 following the introduction of SCT framework.

The second last column presents the regression results for total export FOB values. The results show that the introduction of SCT framework led to a decline of exports by an average of Ksh. 2.128. The last column show the export volumes declined by an average of Ksh.1.917 following the introduction of SCT framework.

Therefore, the introduction of SCT framework resulted in efficiency gains in tax revenue collection.

5. Conclusion and Recommendations

Single Customs Territory (SCT) framework was adopted in 2013 based on the destination model paving way to the implementation of the East African Community (EAC) Single Customs Territory (SCT) in January 2014. It is the consolidation level of the Customs Union (CU) with the aim of allowing free circulation of goods with minimum internal customs border controls, enhance trade facilitation by eliminating trade barriers and reduce cost of doing business and promote intra trade and investment (EAC 2014). Single Customs territory enhances trade facilitation by eliminating trade barriers, reduce the cost of doing business and promote intra trade and investment. However, it is not clear whether the introduction of the SCT framework has led to increased customs revenue in Kenya or not. Thus, this study sought to analyse the trend of both imports and exports values and volumes flows in pre- and post-SCT framework periods and identify the factors underlying the observed trend.

To address the objectives of this study two quasi-experimental techniques; regression discontinuity design and difference in differences approaches were used. These techniques exploit the discontinuity (kinks) following a policy change to examine its effects. The results show that import values (CIF) increased by an average of Kshs. 1.104 while import volumes increased by an average of Kshs. 1.062 following the introduction of SCT framework. However, introduction of SCT framework led to a decline of exports values (FOB) by an average of Ksh. 2.128 and export volumes by an average of Ksh.1.917.

5.2 Recommendations

The study therefore recommends

1. SCT framework can be rolled out to other countries outside EAC especially the countries where Kenya gets its major imports from.
2. Roll out of SCT for air cargo.
3. Introduction of SCT framework increased import values (CIF) by an average of Kshs. 1.104 as compared to increased import volumes by an average of Kshs. 1.062. Therefore, SCT framework should be fully implemented on all products imported whose taxes are based on values.

At last, further studies can be undertaken in this area investigating the factors influencing trade flows in Kenya where SCT framework will be taken as a dummy variable and Panel data estimated using gravity model

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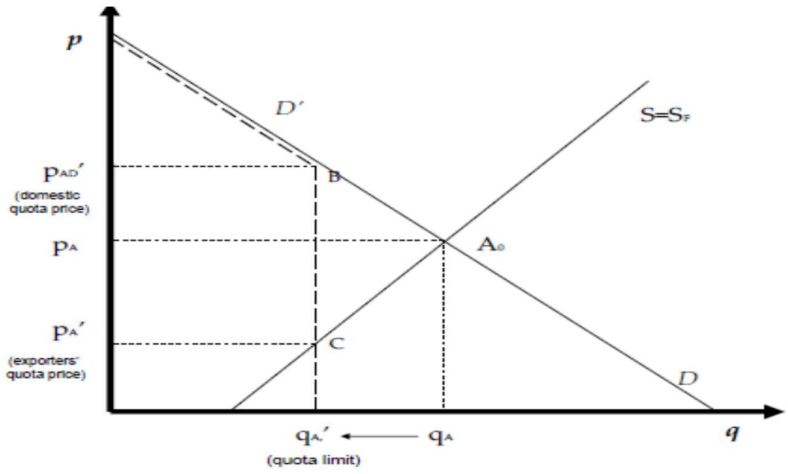
Annex

Fig 2.1 Partial equilibrium model



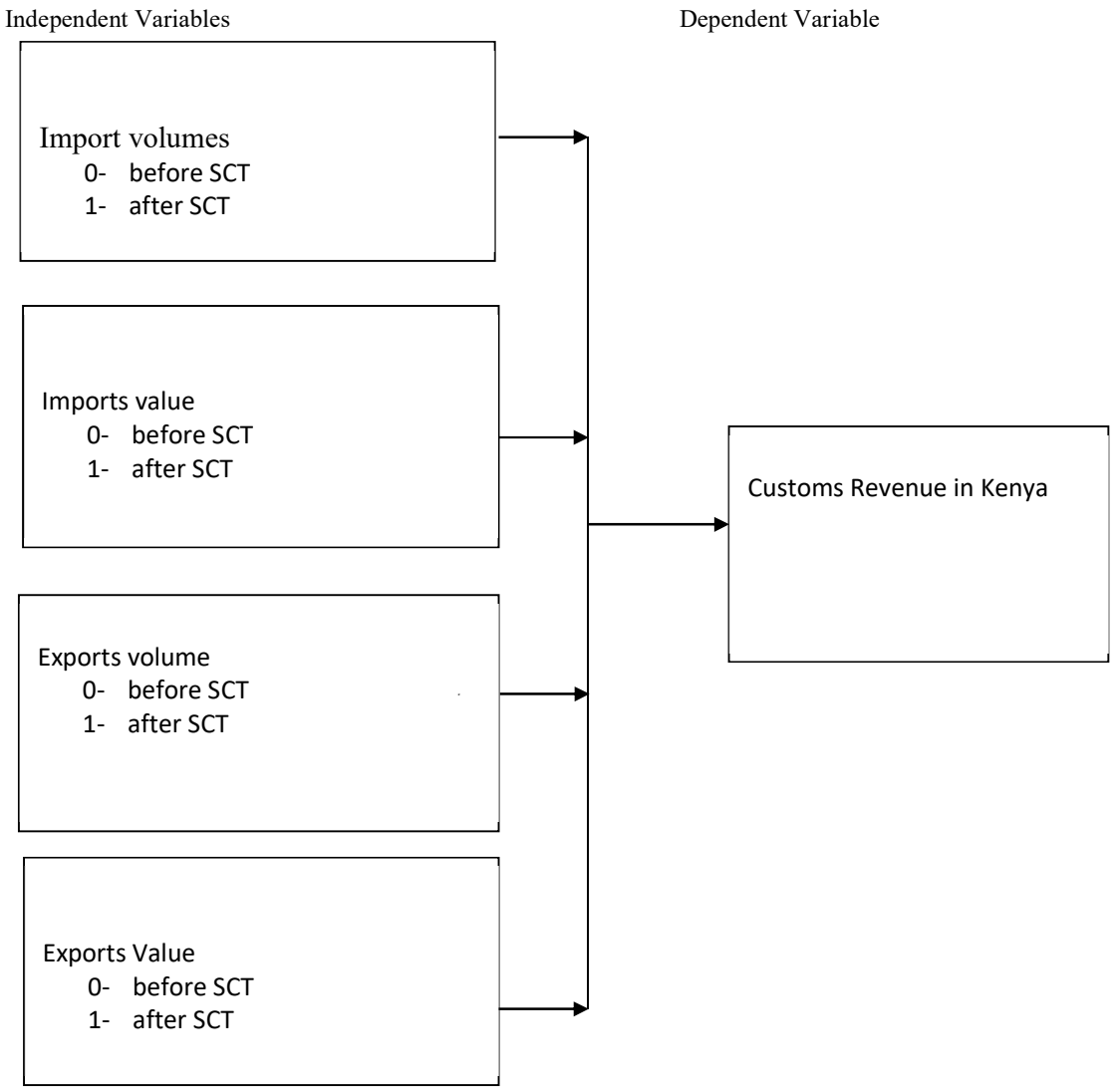


Figure 2.2: Conceptual Framework

Table 1: Regression on import values

```
. gen did = time*treated

. reg logCIF time treated did, r

Linear regression                               Number of obs     =        120
                                                F(3, 116)         =      14.23
                                                Prob > F          =     0.0000
                                                R-squared         =     0.1368
                                                Root MSE          =     1.8255

------------------------------------------------------------------------------
             |               Robust
      logCIF |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  timedummy  |  -.7476346   .6011117    -1.24   0.216    -1.938212    .4429428
    treated  |   1.104415   .2756086     4.01   0.000     .5585375    1.650292
        did  |   .9529029   .6043351     1.58   0.118     -.244059    2.149865
      _cons  |    19.6757   .2725184    72.20   0.000     19.13594    20.21546
------------------------------------------------------------------------------
```

Source: Data Analysis Results (2021)
Table 2: Regression on import volumes

```
. reg logNW time treated did, r

Linear regression                               Number of obs     =        120
                                                F(3, 116)         =      12.34
                                                Prob > F          =     0.0000
                                                R-squared         =     0.1585
                                                Root MSE          =      1.649

------------------------------------------------------------------------------
             |               Robust
       logNW |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  timedummy  |  -.8414229   .5361742    -1.57   0.119    -1.903384    .2205377
    treated  |   1.062205   .2524832     4.21   0.000       .56213    1.56228
        did  |   .9074438    .538864     1.68   0.095    -.1598442    1.974732
      _cons  |    14.73841   .2494837    59.08   0.000     14.24428    15.23255
------------------------------------------------------------------------------
```

Source: Data Analysis Results (2021)
Table 3: Regression on export values

Linear regression

Number of obs	=	160
F(3, 156)	=	42.94
Prob > F	=	0.0000
R-squared	=	0.2264
Root MSE	=	1.6311

logFOB	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
timedummy	-.7055869	.3966724	-1.78	0.077	-1.489129	.0779551
treated	-2.128271	.2007689	-10.60	0.000	-2.524848	-1.731695
did	.901626	.4021562	2.24	0.026	.1072518	1.696
_cons	22.74613	.1964073	115.81	0.000	22.35817	23.13409

Source: Data Analysis Results (2021)

Table 4: Regression on export volumes

```
. reg logNW time treated did, r
```

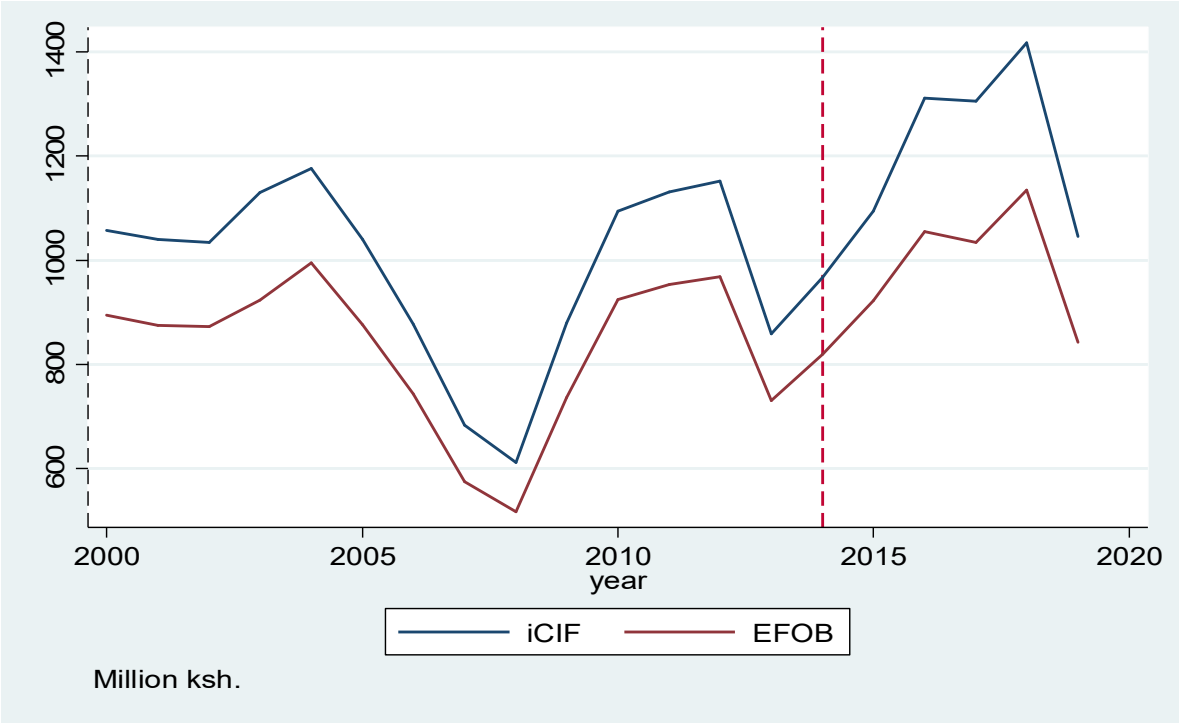
Linear regression

Number of obs	=	160
F(3, 156)	=	30.81
Prob > F	=	0.0000
R-squared	=	0.1833
Root MSE	=	1.716

logNW	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
timedummy	-.7302108	.4005277	-1.82	0.070	-1.521368	.0609465
treated	-1.917177	.2126226	-9.02	0.000	-2.337168	-1.497187
did	.770764	.4044035	1.91	0.058	-.0280491	1.569577
_cons	17.71309	.2089665	84.77	0.000	17.30032	18.12586

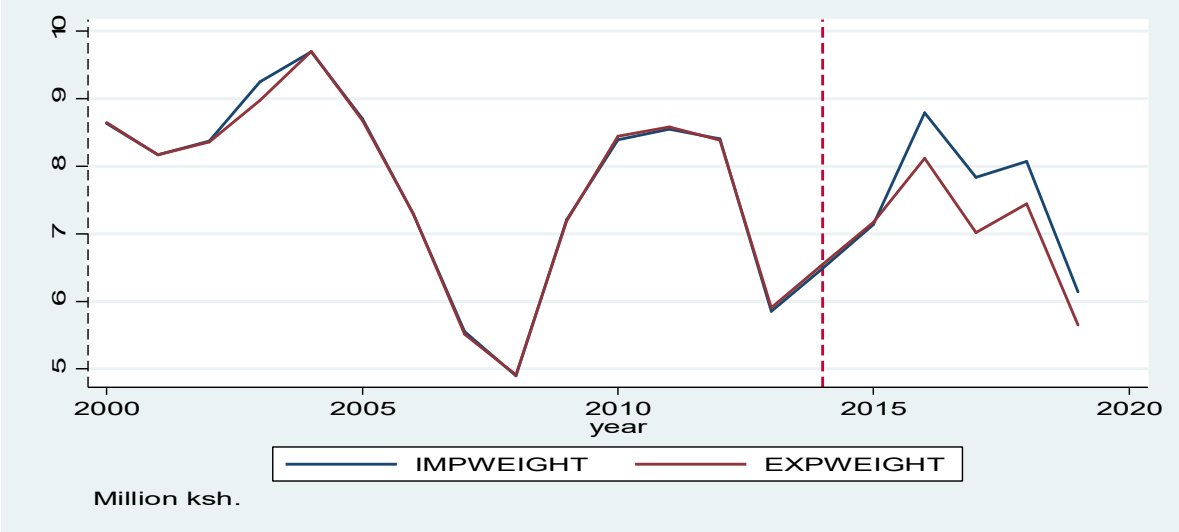
Source: Data Analysis Results (2021)

CIF AND FOB



Source: Data Analysis Results (2021)

IMPORT WEIGHT (IWEIGHT) AND EXPORTS WEIGHT (EWEIGHT)



Source: Data Analysis Results (2021)

Table 5: Difference in differences regression results

	IMPORTS		EXPORTS	
VARIABLES	logCIF	logNW	logFOB	logNW
treated	1.104***	1.062***	-2.128***	-1.917***
	(0.276)	(0.252)	(0.201)	(0.213)
Time dummy	-0.748	-0.841	-0.706*	-0.730*

	(0.601)	(0.536)	(0.397)	(0.401)
DID	0.953	0.907*	0.902**	0.771*
	(0.604)	(0.539)	(0.402)	(0.404)
Constant	19.68***	14.74***	22.75***	17.71***
	(0.273)	(0.249)	(0.196)	(0.209)
Observations	120	120	160	160
R-squared	0.137	0.159	0.226	0.183

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix I: Work Plan

ACTIVITIES	**November 2020**	**December 2020**	**January 2021**	**February 2021**	**March 2021**
Writing of Research Proposal					
Data Collection and methodology					
Data Analysis and interpretation					
Editing, report writing and submission					

Appendix II: Budget

ACTIVITIES	**AMOUNT IN Ksh**
Typing	10,000
Stationeries: Printing papers	15,000
Printing	5,000
Travelling	10,000
Binding	10,000
Total	**50,000**