

---

**EFFECT OF TRADE TAXES ON TRADE DEFICIT IN KENYA**

Kiganda Evans Ovamba

Department of Economics, Kaimosi Friends University College, Kenya

Ouma Denis

Department of Business administration and Management Science, Kaimosi Friends University College, Kenya

Mobile: +254 723 774 179

Address: C/O Kaimosi Friends University College, P.O. Box 385- 50309, Kaimosi, Kenya

**Abstract**

Kenya has been recording trade deficits over years. However, studies to establish determinants of trade deficit in Kenya have fell short of analyzing the effect of trade taxes on trade deficit. This makes the effect of trade taxes on trade deficit in Kenya unknown. Therefore, this study investigated the effect of trade taxes on trade deficit in Kenya with the specific objectives of determining the composition of total tax in Kenya and determining the effect of trade taxes on trade deficit in Kenya. The study employed correlation research design based on monthly time series data spanning 36 months from January 2015 to December 2017. Data was obtained from the Central Bank of Kenya. The Johansen co integration test was used to analyze the long run effect of trade taxes on trade deficit in Kenya while Granger causality test analyzed the direction of causality between trade taxes and trade deficit in Kenya. The findings indicated that VAT constituted the largest proportion of total tax but had no effect on trade deficit while excise duty and import duty had significant positive and negative effects on trade deficit in Kenya respectively. There was also unidirectional causality from trade deficit to VAT, excise duty and import duty in Kenya. The study recommended that the government of Kenya should adopt a fiscal policy geared towards reducing excise duty and increasing import duty to increase exports and decrease imports that will lead to a reduction in trade deficit.

**Keywords** Trade taxes; Trade deficit; Kenya

**Introduction**

**Background to the study**

Trade balance is the difference between imports and exports. When imports overweigh exports then we have a trade deficit (Osoro, 2013). Trade deficits are linked to economic development due to imports of capital goods, raw materials, intermediate products among others. In Kenya we can associate deficits to low export prices and low wages paid to workers, poor infrastructure, high prices of inputs, poor health and safety standards, poor environmental policies, and relatively high barriers to trade with trade partner countries (Osoro, 2013). Kenya has been witnessing worsening trade balance over time (KIPPRA, 2016). The trade balance worsened by 18.7 per cent from a deficit of KSh 911.0 billion in 2013 to a deficit of KSh 1,081.1 billion in

2014. This was as a result of faster growth in imports (14.5 per cent) compared with 7.0 per cent increase in total exports (Republic of Kenya, 2014).

Trade taxes are associated with increased welfare costs to consumers and producers. Taxes on specific types of consumption reduce trade if the good in question is an importable, and they promote trade if the good is an exportable (Whalley, 2002). The design of tax structures in both developed and developing countries is influenced by many things, including the ways in which taxes affect both the composition and size of trade. While taxes are used primarily to raise revenue, it is widely agreed that they should be as neutral as possible in their impact on resource allocation in the economy, and hence not undermine international competitiveness and be as neutral as possible in their impacts on trade (Whalley, 2002). Import and export taxes have a principal effect of retarding trade by reducing trade volumes on both the import and export side and imposing economic costs through their induced resource misallocation effects (Whalley, 2002).

Several studies have been conducted world over to establish the determinants of trade balance. In Kenya Osoro (2013) and Ogutu (2014) analysed the determinants of trade deficit. However, their studies focused on the effect of Gross Domestic Product (GDP), money supply, exchange rate, Foreign Direct Investment (FDI) and budget deficits on trade balance. This makes the effect of trade taxes such as Value Added Tax (VAT), import and export duty on trade deficit in Kenya unknown. Thus, this study investigated the effect of trade taxes on trade deficit in Kenya.

### **Specific Objectives**

- i. To determine the composition of total tax in Kenya
- ii. To determine the effect trade taxes on trade deficit in Kenya

### **Research Questions**

- i. What is the composition of total tax in Kenya?
- ii. What is the effect of trade taxes on trade deficit in Kenya?

### **Significance of the Study**

The Kenyan economy has been experiencing worsening trade balance which has led to the country recording trade deficits over years. Despite the huge trade deficits characterized by high imports and low exports, studies on the determinants of trade deficits in Kenya like that of Osoro (2013) and Ogutu (2014) failed to analyze how trade taxes affect trade deficit in Kenya. This raised the need to investigate the effect of trade taxes on trade deficit in Kenya. This bridges the knowledge gap of unknown effect of trade taxes on trade deficit in Kenya. The study findings inform policy makers the effect of trade taxes on trade deficit in Kenya hence appropriate in the formulation of fiscal policy that considers how the various taxes affect trade deficit with an aim of targeting a reduction in worsening trade deficit in Kenya.

### **Scope of the Study**

The study covered 36 months from January 2015 to December 2017.

## **Literature Review**

### **Determinants of Trade Deficit**

Ogutu (2014) established the relationship between the real exchange rate and the trade balance in Kenya using annual time series data from 1963 to 2013. The study findings indicated that exchange rate had a positive effect on trade deficit in Kenya.

Osoro (2013) investigated the major determinants of trade balance using annual data for the period 1963-2012. He explored the long run and short run determinants of trade deficit with the results indicating that the coefficients of trade deficit are positively correlated with budget deficits, FDI and exchange rates.

Waliullah et al. (2010) examined the short and long-run relationship between the trade deficit, income, money supply, and real exchange rate in the case of Pakistan's economy. The estimated results showed that exchange rate depreciation was positively related to the trade deficit in the long and short run. The results also provided strong evidence that money supply and income played a strong role in determining the behavior of the trade deficit.

Kamaruddin (2014) tested the determinants of trade deficit in Malaysia using annual data starting from year 1975 until 2013. Four variables were used in this study, trade deficit, the real effective exchange rate, Gross Domestic Product (GDP) and money supply. The result showed that the variables had a positive effect on trade deficit in Malaysia.

Yoshimine and Norrbin (2011) examined the effect of tax rate on trade balance in OECD countries. The results indicated that the trade balance is adversely affected by corporate rate tax where there was a positive relationship between corporate tax and trade balance in OECD countries.

Desai and Hines (2005) examined the effect of value-added taxes (VATs) on international trade. Evidence from 136 countries indicated that reliance on VATs is associated with fewer exports and imports. Countries using VATs have one-third fewer exports than do countries not using VATs, and 10 percent greater VAT revenue is associated with two percent fewer exports. There was a significant positive effect of VATs on trade deficit.

### **Summary of Literature**

Empirical literature review indicates that there are several determinants of trade deficit. These determinants include exchange rate, GDP, FDI, budget deficits, taxes among others. However, studies conducted in Kenya only established exchange rate, GDP, FDI, budget deficits as trade deficit determinants. This makes the effect of trade taxes on trade balance in Kenya unknown necessitating a study to investigate the effect of trade taxes on trade deficit in Kenya.

### **Theoretical Framework**

According to the national income identity as specified by Keynes in his Keynesian theory of income determination that;

$$Y = \frac{1}{1-b}(a - bT + I + G + X - M) \quad (1.1)$$

$$X - M = (1-b)Y - a + bT - I - G \quad (1.2)$$

$$X - M = f(Y, a, T, I, G) \quad (1.3)$$

$$X - M = f(T, \varepsilon) \quad (1.4)$$

$$X - M = f(ID, ED, VAT, \varepsilon) \quad (1.5)$$

Based on the transformation of Keynesian model of income determination and making net exports (X-M) the subject, this study hypothesized that trade deficit (a negative difference between exports and imports) a dependent variable is a function of trade taxes (import duty, excise duty and VAT) which are the independent variables and other factors captured by the error term such as government expenditure, investment, autonomous consumption and national income.

### **Research Methodology**

#### **Research Design.**

A research design is the plan and structure of the investigation used to obtain evidence to answer research questions and which strategies are most effective for obtaining it (Taylor & Wallace, 2007). The study employed correlation research design. Gujarati (2004) argue that correlation research design is used in establishing the effect of a variable on another.

#### **Data Collection**

This study involved monthly time series data to be obtained from the Central Bank of Kenya Statistics. It constituted data on trade deficit and trade taxes for the period January 2012 to December 2015.

#### **Data Analysis and Model Specification**

The study will employ Vector Autoregressive (VAR) techniques of co integration and Granger causality to determine the effect of trade taxes on trade deficit in Kenya. The model of analysis was based on the functional relationship (1.5) such that;

$$TD = \beta_0 + \beta_1 ID + \beta_2 ED + \beta_3 VAT + \varepsilon \tag{3.1}$$

Where

*TD* = Trade deficit

*ID* = Import duty

*ED* = Excise duty

*VAT* = Value added Tax

$\varepsilon$  = Error term

$\beta_0, \beta_1, \beta_2, \beta_3$  = Coefficients

**Results**

**Descriptive Statistics**

Table 4.1 test results indicated that all the variables of excise duty (ED), import duty (ID), value added tax (VAT), total tax (TTAX) and trade balance (TB) were normally distributed given the Jarque-Bera statistics for each of the variables was greater than 0.05. It was also noted that the mean, minimum and maximum values are negative implying that Kenya has been experiencing a trade deficit over years.

The first objective of this study was to determine the composition of total tax in Kenya. Table 4.1 test results indicated that excise duty, import duty and value added tax on average constituted 12.4%, 9% and 27.8% of total tax in Kenya. This implied that VAT comprises the largest proportion of trade taxes collected in Kenya.

**Table 4.1:** Descriptive statistics

	ED	ID	VAT	TTAX	TB
Mean	55087.59	39982.38	123819.5	445335.5	-82854.27
Median	56506.00	39170.00	119700.0	428830.0	-78833.00
Maximum	115872.0	84512.00	259685.0	958186.0	-58417.00
Minimum	7615.000	4564.000	15257.00	55113.00	-119463.0
Std. Dev.	29073.94	21612.99	67164.49	242865.1	15367.17
Skewness	0.140664	0.164215	0.160176	0.184409	-0.657689
Kurtosis	2.185721	2.116925	2.069160	2.171746	2.728573

Jarque-Bera	1.144219	1.368519	1.494012	1.267300	2.781003
Probability	0.564334	0.504464	0.473783	0.530651	0.248950
Sum	2038241.	1479348.	4581322.	16477414	-3065608.
Sum Sq. Dev.	3.04E+10	1.68E+10	1.62E+11	2.12E+12	8.50E+09
Observations	36	36	36	36	36

Author (2017)

**Stationarity Tests**

Table 4.2 stationarity test results based on unit root analysis indicated that excise duty although integrated at level for the model with intercept, it was integrated of order one for the models with intercept and trend and without intercept and trend. Import duty was integrated of order one, VAT although integrated at level for the model with intercept, it was integrated of order one for the models with intercept and trend and without intercept and trend. Trade balance although integrated at level for the models with intercept and with intercept and trend it was integrated of order one for the model without intercept and trend.

**Table 4.2:** Unit root test results

Variable		ADF Coeff	- PP- Coeff	ADF value	P- PP value	P- Inference	
ED	Level	Intercept	-0.501573*	-	0.0183	0.0149	I(0)
		None	-0.100272	-0.100272	0.1758	0.2211	-
		I & T	-0.502809	-0.502809	0.0767	0.0639	-
	1 <sup>st</sup> diff	Intercept	-	-	-	-	-
		None	-1.121737*	-	0.0000	0.0000	I(1)
		I & T	-1.121863*	-	0.0000	0.0000	I(1)
ID	Level	Intercept	-0.402204	-0.402204	0.0501	0.0662	-
		None	-0.084979	-0.084979	0.2031	0.2197	-
		I & T	-0.405842	-0.405842	0.1660	0.1286	-
	1 <sup>st</sup> diff	Intercept	-1.018903*	-	0.0000	0.0000	I(1)
			1.018903*				

VAT	Level	None	-1.018848*	-	0.0000	0.0000	I(1)
				1.018848*			
	Intercept	I & T	-1.019978*	-	0.0002	0.0001	I(1)
				1.019978*			
	None	Intercept	-0.501849*	-	0.0179	0.0161	I(0)
				0.501849*			
I & T	None	-0.105778	-0.105778	0.1623	0.2179	-	
	Intercept	-0.502423	-0.502423	0.0761	0.0690	-	
TB	1 <sup>st</sup> diff	Intercept	-	-	-	-	-
		None	-1.121737*	-	0.0000	0.0000	I(1)
	I & T			1.121737*			
		Intercept	-1.148363*	-	0.0000	0.0000	I(1)
	Level	Intercept	-0.798949*	-	0.0005	0.0004	I(0)
				0.798949*			
None	None	-0.010166	-0.027227	0.5753	0.5228	-	
	I & T	-0.894720*	-	0.0012	0.0010	I(0)	
1 <sup>st</sup> diff	Intercept						
		None	-2.043260*	-	0.0000	0.0000	I(1)
	I & T			1.531267*			
		Intercept	-	-	-	-	-

Author (2017)

### Co integration

Table 4.3 test results based on Johansen co integration test indicate 4 co integration equation based on both trace test and maximum eigenvalue test. This implied that trade taxes in Kenya have a long run relationship with trade deficit.

**Table 4.3:** Johansen co integration results

#### Unrestricted Co integration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.684531	96.23112	47.85613	0.0000
At most 1 *	0.528543	57.00553	29.79707	0.0000
At most 2 *	0.383804	31.44001	15.49471	0.0001

At most 3 \*      0.356296      14.97753      3.841466      0.0001

Trace test indicates 4 co integrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Co integration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.684531	39.22559	27.58434	0.0010
At most 1 *	0.528543	25.56552	21.13162	0.0111
At most 2 *	0.383804	16.46248	14.26460	0.0221
At most 3 *	0.356296	14.97753	3.841466	0.0001

Max-eigenvalue test indicates 4 co integrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Author (2017)

The second objective of the study was to determine the effect of trade taxes on trade deficit in Kenya. Normalized co integration coefficient results in Table 4.4 indicated that the long run relationship between trade taxes and trade deficit in Kenya can be represented as;

$$TD_t + \underset{[3.3837]}{1.67} ID_t - \underset{[-4.1513]}{1.85} ED_t + \underset{[0.0219]}{0.01} VAT_t = 0 \tag{4.1}$$

$$TD_t = \underset{[4.1513]}{1.85} ED_t - \underset{[-3.3837]}{1.67} ID_t - \underset{[-0.0219]}{0.01} VAT_t \tag{4.2}$$

Model (4.2) implied that excise duty and import duty have a significant positive and negative effect on trade deficit in Kenya at 5% level of significance while VAT had no significant effect on trade deficit in Kenya. Thus a percentage increase in excise duty increases trade deficit in Kenya by 1.85% while a percentage increase in import duty decreases trade deficit in Kenya by 1.67%. This may be attributed to the fact that increased excise duty increases the price of locally manufactured goods making Kenyan products uncompetitive in the international market which discourages exports while increase in import duty makes local products cheaper as compared to goods from foreign market thus discouraging imports. These findings conform to the findings of Yoshimine and Norrbinn (2011) who examined the effect of tax rate on trade balance in OECD countries and established that trade balance is adversely affected by corporate rate.

**Table 4.4:** Normalized co integration coefficients

---

Normalized co integrating coefficients (standard error in parentheses)

---

TB	ID	ED	VAT
1.000000	1.670522	-1.853162	0.011926
	(0.49370)	(0.44640)	(0.54341)
	[3.383678]	[-4.151349]	[0.021947]

---

Author (2017)

**Causality**

The Granger causality test results in Table 4.5 indicated that there existed unidirectional causality running from import duty and excise duty to trade deficit and a unidirectional causality running from trade deficit to VAT at 5% level of significance in Kenya.

**Table 4.5:** Pair wise Granger causality tests

Null Hypothesis:	Obs	F-Statistic	Prob.
ID does not Granger Cause TB	35	5.97530*	0.0202
TB does not Granger Cause ID		0.04308	0.8369
ED does not Granger Cause TB	35	6.31727*	0.0172
TB does not Granger Cause ED		0.00472	0.9457
VAT does not Granger Cause TB	35	0.00032	0.9858
TB does not Granger Cause VAT		4.96841*	0.0330

---

Author (2017)

**Conclusions and Recommendations**

**Conclusions**

The study concluded that;

- i. Value added tax (VAT) comprised the largest proportion of trade taxes
- ii. Excise duty had a significant positive effect on trade deficit in Kenya in the long run
- iii. Import duty had a significant negative effect on trade deficit in Kenya in the long run

**Recommendations**

The study recommended that;

- i. The government of Kenya to adopt a fiscal policy geared towards reducing excise duty. This will encourage exports as the locally manufactured products will be less expensive improving international competitiveness and hence decrease in trade deficit.

- ii. The government through its fiscal policy to target increasing import duty. This will discourage importers hence decreasing imports that will decrease trade deficit.

**References**

- Central Bank of Kenya. (2015). *Monetary policy statement: June 2015*. Nairobi: Central Bank of Kenya.
- Desai, M. A., & Hines, J. R. (2005). *Value-Added Taxes and International Trade: The Evidence*. Michigan: Michigan University.
- Gujarati, D. N. (2004). *Basic econometrics* (4th ed.). McGraw- Hill Companies: United Kingdom.
- Kamaruddin, A. A. (2014). Determinants of Malaysian Trade Balance: An ARDL and FMOLS Approach. *International Conference on Postgraduate Research* (pp. 7-15). Kuala Lumpur, Malaysia: ICPR.
- KIPPRA. (2016). *Kenya economic report 2015: Empowering youth through decent and productive employment*. Nairobi: KIPPRA.
- Ogutu, G. O. (2014). *Effects of real exchange rate on trade balance in Kenya*. Hague: International Institute of Social Studies.
- Osoro, K. (2013). Kenya's Foreign Trade Balance: An Empirical Investigation. *European Scientific Journal*, 9 (19), 176-189.
- Republic of Kenya. (2014). *Kenya Economic Survey 2014 Highlights*. Nairobi: Kenya National Bureau of Statistics.
- Taylor, P. C., & Wallace, J. C. (2007). *Qualitative Research in Post Modern Times: Contemporary Qualitative Research*. Netherlands: Springer.
- Waliullah, W., Kakar, M. K., Kakar, R., & Khan, W. (2010). The Determinants of Pakistan's Trade Balance: An ARDL Cointegration Approach. *The Lahore Journal of Economics*, 15 (1), 1-26.
- Whalley, J. (2002). *Taxes on Trade*. Ontario: University of Western Ontario. Yoshimine, K., & Norrbin, S. c. (2011). The effect of the corporate tax rate on the trade balance. *Applied Economics Letters*, 14 (5), 343-347.