The Effect of Custom and Excise Duties On Economic Growth in Kenya

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DOI: 10.29322/IJSRP.9.01.2019.p8564
http://dx.doi.org/10.29322/IJSRP.9.01.2019.p8564

Abstract: *The responsibility shouldered by the government of any nation, particularly the developing nation is enormous; the need to fulfill these responsibilities largely depends on the amount of revenue generated by government through various means. Kenya relies heavily on tax revenue to fund government expenditure. The role of tax revenue in promoting economic growth may not be felt if the correct choice between different taxes is not made, this calls for proper examination of the relationship between the revenue generated from different types of taxes and economic growth. The fiscal crisis occasioned by the international oil shock in early 1970s, motivated the Kenyan government to shift the tax policy towards greater reliance on indirect taxes. Consequently, the level of revenue from custom and excise taxes has risen steadily in the period 1973-2010; however, this was coupled with a persistent decline in economic growth. Such significant increases in custom and excise tax revenue raise pertinent questions about the effect they have had upon economic growth. The purpose of the study was therefore to analyze the effect of custom and excise duties on economic growth in Kenya for the period 1973 to 2010, This study is motivated by two developments. First, by the inconsistency in existing empirics and secondly by the wide knowledge gap occasioned by the paucity of empirical literature on Kenya. Therefore, this study attempts to reconcile the different positions and also close the knowledge gap. The study adopted a correlation research design based on its ability determine the strength and direction of relationships between variables while the theoretical framework was anchored on endogenous growth model. The empirical results indicate that custom and excise duties are positively correlated with economic growth in Kenya.*

1.0 INTRODUCTION

The responsibility shouldered by the government of any nation, particularly the developing nation is enormous, Furthermore, the new constitutional dispensation in Kenya establishes a devolved system of government with its enormous resource requirements, the need to fulfill these responsibilities largely depends on the amount of revenue generated by government through various means therefore there is need to put measures that are geared towards enhancing the revenue base (Kago, 2014).A system of tax avails itself as a veritable tool that mobilizes a nation's internal resources and it lends itself to creating an environment that is conducive for the promotion of economic growth (Ayuba, 2014). Muriithi and Moyi (2003) observe that a good tax system should be able to generate the needed revenue for government; redistribute income; and investment infrastructure that will provide the guarantee for business to strive and economic growth.

Despite far reaching reforms implemented in taxation in Kenya, tax revenue collection has not yet reached a level where it can meet all the expenditure requirements of the government (Kago, 2014). The machinery and procedures for implementing a good tax system in developing countries are inadequate; hence tax evasion and avoidance of the self-employed individuals and organizations whose data base is not captured in the relevant tax authority's data system (Fasoranti, 2013). A study by Parliament's Budget Office (2012) says that Kenya's large and rapidly expanding underground economy has expanded rapidly to become a mammoth Sh825 billion

industry that is denying the government at least Sh275 billion in uncollected revenues. The need for the government to generate adequate revenue from internal sources has therefore become a matter of extreme urgency and importance (Afuberoh&Okoye, 2014).

The desire of any government to maximize revenue from taxes collected from tax payers cannot be over-emphasized. This is because the importance of a tax lies in its ability to generate revenue for the government, influence the consumption trends and regulate economy through its influence on vital aggregate economic variables (Fasoranti, 2013). Kenya relies heavily on tax revenue to fund government expenditure, both current and capital, the role of tax revenue in promoting economic growth may not be felt if the correct choice between different taxes is not made. This calls for proper examination of the relationship between the revenue generated from different types of taxes and economic growth. Tax revenue mobilization as a source of financing developmental activities in less developed economies has been a difficult issue primarily because of various forms of resistance, such as evasion, avoidance and other corrupt practices can easily be perpetuated within the direct taxes bracket (Akhor, 2016). The solution appears to be in broad-based indirect taxes like Custom and Excise Duty that has the potential of diversifying the revenue portfolio for the country to promote fiscal sustainability and economic growth (Azaiki&Shagari, 2007).

The performance of Kenya's economy during the first decade of independence in 1963 was impressive because the growth of real GDP averaged 6.6% per year over the period 1963 –1972. Kenya experienced its first major fiscal crisis occasioned by the international oil shock in early 1970s and this motivated the government to shift the tax policy towards greater reliance on indirect taxes as opposed to direct taxes. The aim was to create a sustainable tax system that could generate adequate revenue for economic growth. Consequently, the level of revenue from custom and excise taxes has risen steadily in the period 1973-2010; however, this was coupled with a persistent decline in economic growth (**table 1.1**). Such significant increases in indirect tax revenue raise pertinent questions about the effect they have had upon economic growth.

Table 1.1.Tax structure in Kenya as a percentage of GDP and GDP growth rate from 1963-2010

Type of tax	1963/4-1972/3	1973/4-1982/3	1982/3-1992/3	1992/3-2002/3	2002/3-2010/1
Excise duty	2.1	2.0	2.1	4.0	3.2
Custom duty	4.2	4.4	3.6	4.0	1.7
GDP growth rate (%)	6.6	5.2	4.2	2.3	4.3

Source: Karingi and Wanjala (2005), Amanja and Morrissey(2005),Economic surveys.

This research looks at the effects of custom and excise duties on economic growth for Kenya, a developing country. An enormous amount of studies have been carried out in Kenya on the effects of taxes. However, the researches often look at sector specific taxes (Okello 2001, Kiringai et al 2001, Kiringai et al 2002, Bouet and Roy 2012). The empirical studies on the effect of custom and excise duties on economic growth in Kenya are relatively few. Some empirical studies have been conducted to examine the effect of custom and excise duties on economic growth in both developed and developing countries, but one common feature of these empirical studies is lack of consensus among the scholars, Most studies have therefore reached substantially different conclusions on the relative impact of custom and excise duties on economic growth. This study is motivated by two developments. First, by the inconsistency in existing empirics and secondly by the wide knowledge gap occasioned by the paucity of empirical literature on Kenya. Therefore, this study attempts to reconcile the different positions and also close the knowledge gap.

2.0 REVIEW OF THEORITICAL AND EMPIRICAL STUDIES

In examining the effects of tax policy on economic growth, there are two lines of thinking: according to the exogenous growth models (Solow, 1956), tax policy has no impact on economic growth in the long run, assuming that key factors of production such as labour and technological progress are determined outside the model; on the contrary, endogenous growth theorists (starting with Barro, 1990; King and Rebelo, 1990; and Lucas, 1990), who believe that economic expansion is determined within the system, argue that tax policy does have an impact on economic growth and welfare over time.

The theoretical foundation of the study revolves around endogenous growth model's proposition that government spending and tax policies can have a long- term or permanent growth effects. The endogenous growth theory advocates the stimulation of level and growth rate of per capita output through the economic policies such as tax policies. Economic growth is generated by three production

factors: labour, capital and technological progress, which are related to each other through a production function. Taxes could alter the economic decisions regarding these factors, and thus affect economic growth (Zipfel and Heinrichs, 2012). Barro (1990) constitutes one of the first attempts at endogenizing the relationship between growth and fiscal policies. He distinguishes four categories of public finances: productive vs. non-productive expenditures and distortionary vs. non-distortionary taxation. Taxation is non-distortionary if it does not affect the investment decision, and hence economic growth. This is, above all, the case for customs duties, excise duties and value added tax. Otherwise taxes, such as direct income and profit taxation are considered distortionary.

2.1 Kenya's tax structure

The tax system in Kenya refers to the range of taxes over which the government has exclusive or shared jurisdiction. The tax system also covers the machinery put in place by government for the administration and collection of such taxes. Different types, forms and classes of taxes exist, but the most common classification in Kenya is direct and indirect taxes. In Kenya, the government can emphasize on any one of the tax forms depending on the objective it wants to pursue. The direct tax is a levy on personal income, corporate profits or property. When the imposition is on the price of goods and services, then it is called an indirect tax, the different prominent components of indirect taxation in Kenya include; value added tax, custom duty and excise duty.

Customs and excise duties are the oldest forms of modern taxation; they were first introduced in Kenya around 1923. The term 'excise' relates to a form of taxation which is applied to a narrow base of goods (and services), which primarily are seen to have a level of harm associated with their consumption (Preece, 2013). Excise duty is a levy that is applied selectively on particular commodities such as tobacco, cigarettes and alcohol in order to compel the users of the excisable commodities to internalize the externalities associated with the commodities, and it is also charged for revenue purposes. (Okello, 2001).The tax is directly paid by the manufacturers, but the tax burden is passed to the consumers through an increase in prices. The most compelling reason for the use of excise taxes is that they can potentially raise a great deal of revenue with little distorting effect (McCarten and Stotsky,1995). Customs duty is the tax charged most times on the value of goods or upon the weight, dimensions, or some other criteria that will be determined by the government on imports by the customs service of Kenya to raise revenue for the country and also to save domestic and infant industries from cut-throat competition.

The Custom duty and Excise duty are regulated by the Custom and Excise Act (Cap 472) Laws of Kenya. The administration of custom and excise taxes, therefore, is the responsibility of the Customs and Excise Department of the Kenya Revenue Authority. Customs duty is applicable when importing or exporting certain goods and services. In Kenya, excise duty is imposed on both goods and services including beer & spirits, soft drinks, cigars & cigarettes, polythene bags (of a particular specification) wine, cars and mobile telephony services among others. It was administered under the Customs & Excise Act 2010, however, effectively, 1 December 2015; the tax is administered under the Excise Duty Act 2015.

Studies of the period 1870-1914 have emphasized that protectionist tariff policy was associated with higher rates of economic growth**.** Starting from Bairoch's (1989) observation that the tariff hikes of the 1870s had positive growth effects for the countries that applied this policy, O'Rourke (2000) and Jacks (2006) tend to confirm propositions regarding the positive correlation between custom duties and growth in the late nineteenth century. Azam (2011) examined the link between institutions, tariffs, and economic growth. Their model was an extension of the ''tariffs and Schumpeterian growth'' model of Dinopoulos and Syropoulos (1997). Their results revealed that the relationship between tariffs and economic growth is not as obvious. They found that if a country has a technologically dynamic export sector (characterized by large innovations), higher tariffs reduce economic growth by channeling labour away from Research and Development in the export sector. On the other hand, in a country with a technologically dynamic domestic production sector, higher tariffs may lead to higher growth.

Other studies that follow a similar time-series strategy point out that the relationship between average tariffs and economic growth depends crucially on the countries included in the sample. Irwin (2002b) shows that rich land-abundant countries may be outliers in the relation between tariffs and economic growth, because they often relied on customs duty to generate a large proportion of their government revenue therefore they tended to impose high tariffs, but without following an import substituting strategy. Schularick and Solomou (2009) assembled data for a panel of 19 countries (Argentina, Australia, Brazil, Canada, Chile, Denmark, France, Germany, Japan, Italy, India, Mexico, Netherlands, Norway, Russia, Spain, Sweden, United Kingdom, USA) to reassess the empirical

evidence on the relationship between custom duties and economic growth during the period 1870-1914. Using the OLS fixed effects panel estimation within a Generalized Method of Moment (GMM) approach. Their results suggested that the relationship between custom duties and economic growth during the period 1870-1914 was insignificant – although there is evidence of a negative relationship in some of the models estimated.

By heavily focusing on how taxes affect economic growth in OECD, Gober and Burns (1997) conducted a study about the relationship between tax structure and economic indicators for the Organization of Economic Cooperation and Development (OECD) countries. From their finding, customs and excise duties are highly significant, in which there is a positive relationship with economic growth (GDP). However, according to them total tax revenue has a negative relationship with two economic indicators that is saving and investment. Åsa, Heady, Arnold and Vartia (2008) investigated the design of tax structures to promote economic growth. Their empirical evidence suggested that excise duties, value added taxes, custom duties and property taxes appears to have significantly less adverse effects on GDP than income tax. A reform towards greater use of taxes on consumption could raise GDP but it would also increase inequality, particularly at the lower end of the wage distribution as consumption taxes are less progressive than personal income taxes. . Shinohara (2012) analyzed the effect of tax structures on economic growth. They separated and analyzed 30 countries of OECD and 21 countries of OECD. In the former group, it was found that fund procurement by annual revenue items, other than personal income has a positive effect on economic growth, Value added tax, customs and excise duties have a positive effect on economic growth.

Dejong and Ripoll (2005) examined the relationship between custom duties revenue and growth rates in a panel that consisted of 60 countries over the period 1975-2000; paying particular attention to its potential contingency on the level of economic development. Using the OLS fixed effects panel estimation within a Generalized Method of Moment (GMM) approach, the study found that the relationship between customs revenue and economic growth is negative and significant among the world's rich countries, while it is positive and significant among the world's poor countries. Their results run contrary to the view that higher tariffs are universally detrimental to growth. Dritsaki and Katerina (2005) examined the relationship between tax revenues and three economic indicators namely change in gross domestic product, savings and investment in Greece during the period 1965-2002. They applied the seemingly unrelated regression (SURE) approach in order to determine the relationship between tax categories and economic indicators. Their results showed that a long run relationship exist between tax categories and economic indicators and are significant. Particularly, they found a robust negative relationship between custom and excise duties and gross domestic product.

Athukorola and Chand (2005) employed the conventional growth accounting framework in investigating the tariff growth nexus in the Australian economy over the period 1871 to 2002. The model was estimated for the overall period, and four sub-periods: namely, 1870-1900; 1901-1949; 1950-2002; and, 1901-2002. The sub-periods are chosen carefully with a view to examining possible structural breaks in the tariff-growth nexus. Their results provide strong support for a negative association between custom duties and economic growth. The results, however, were consistent with the consensus view in Australian policy circles that unilateral liberalization is the best policy for the nation (Garnaut, 2003). Gustavo,Vazquez and Vulovic (2013) examined the effects of taxation policy on economic growth in a sample of 19 Latin American countries over 1990-2009. They used two empirical approaches; VAR analysis for Argentina, Brazil, Chile, and Mexico, and panel data analysis for the Latin American region alone. The regression results using the worldwide sample indicate that at higher levels of taxation, personal income tax could have significant negative effects on economic growth and greater reliance on custom and excise duties has significant positive effects on growth in Latin America in general.

Sameti and Rafie (2010) analyzed the relationship between income distribution effects of tax and economic growth in Iran and some selected East Asian countries. They used panel data regression in the period 1990-2006. Their results denoted that the impact of customs and excise duties on economic growth is negative and significant, but the ratios of tax on income, profits and capital gains have positive and significant effects on economic growth. Punt et al (2006), in a bid to examine impact of excise duties on GDP, trade and prices, as well as the welfare of households of the Northern and Western Cape in South Africa for the years 1998-2005. The study used a static computable general equilibrium model to analyze the impact of an increase in excise duties on GDP. The results indicate that there is a negative relationship between excise duties and GDP and investment. Ebiringa and Emeh (2012) used simple linear regression technique to investigate the impact of various taxes on the economic growth in Nigeria, using a time period of 1985-2011. Results show that customs and excise duties was negatively related to gross domestic product which implies that an inverse

relationship existed between customs excise duties and economic growth in Nigeria. Company income tax and value added tax had a direct and significant relationship with GDP.

Examining the effect of customs and excise tax reforms on the economic growth of Nigeria, Anyanwu (1997) used the simple linear regression technique to examine the effects of taxes on Economic Growth in Nigeria during the period 1981-1996. The results revealed that customs and excise duties positively and significantly affect GDP just like companies' income tax. However, petroleum profit tax negatively and significantly affects Nigeria's GDP. Adegbie (2011) studied the Customs and Excise Duties Contribution towards economic growth of Nigeria and stated that there is a strong positive relationship between customs and excise duties and economic growth of Nigeria; meaning that this is a source of income that Nigeria should rely on and grow. Okafor (2012) explored the impact of tax revenue on the economic growth in Nigeria over the period 1981-2007. The OLS multiple regression analysis was adopted to determine the relationship between Nigeria's economic growth and the major components of tax revenue, namely petroleum tax revenue, company tax revenue, value added tax revenue, customs and excise duties revenue. The regression result indicated a very positive and significant relationship between customs and excise duties and GDP.

Oladipupo and Ibadin (2015) examines the impact of indirect taxes on economic growth of Nigeria, utilizing time series data spanning a thirty-four year period, from 1981 to 2014, the study utilized the Error Correction Model to evaluate the impact of VAT, PPT and CED on the RGDP. The findings revealed that VAT and PPT exert a positive and significant relationship on the RGDP. It was also revealed that CED of two period lags has a positive relationship with RGDP. Chibu and Njoku (2015), investigated the impact of taxation on the Nigerian economy for the period 1994 -2012. The results of their statistical analysis revealed that positive relationship also existed between the explanatory variables (Custom and Excise Duties, Company Income Tax, and Petroleum Profit Tax) and the dependent Variables (Gross Domestic Product, and Unemployment).

In relation to Kenya, Karingi et al (2001) conducted an assessment on beer taxation in Kenya and concluded that low taxes on beer may create incentives to produce more; this would then lead to higher levels of income through revenue from the increased taxation. On the other hand, looking at the tobacco industry, Kiringai et al (2002) find that the price elasticity of demand for tobacco is low, reported that an increase in price from increases in taxes on tobacco products is unlikely to reduce demand by so much, while instead increasing government revenue. Bouet and Roy (2012) examined trade protection and tax evasion for Kenya, Mauritius and Nigeria, and indicated that higher tax tariffs tend to provide disincentives to pay taxes resulting in lower revenues for the state rather than the intended purpose of increased revenue. Awiti (2012) used a theoretical approach to analyze the effect of taxes and economic growth in Kenya and revealed that an increase in consumption tax has a reducing effect on real income, consumption and Savings decline hence economic growth declines.

Gacanja (2013) explored the relationship between economic growth and tax revenues in Kenya for the period 1991-2011 .Using cointegration and Granger Causality test, the results of the study revealed a positive relationship between economic growth and tax revenues; with all tax variables, income tax, import duties, excise duties and value added tax showing a positive effect on GDP, while the Granger Causality test indicated a bi-directional relationship between economic growth and excise duties. Onduru (2003) analyzed the impact of indirect taxes on economic growth in Kenya for a period of thirty-one years (1972-2002). By interacting indirect taxes with certain key macroeconomic variables namely; population size, investment, volume of trade and external debt, the study found that custom duties cause distortions in the market decisions and consequently impact negatively on economic growth.

Applying the concept of buoyancy and elasticity of excise duties in Kenya, Okello (2001) analyzed the structure of excise duty in Kenya from the period 1970-96. The results of the study showed that the excise tax system has been efficient over the period. This means that although the growth in excise tax can mainly be attributed to the growth of GDP, the effects of discretionary changes were also successful in generating additional revenue. In the long-run, however, the results predict that excise tax revenue will continue to grow faster than the growth in GDP, but that discretionary measures will not generate the expected additional revenue.

RESEARCH METHODOLOGY

3.1 Model specification

The model which is in line with the work of Akhor (2016), in their analysis of the impact of tax structure on economic growth of Nigeria was found relevant to lead this study. The model was modified to fit custom and excise duty separately to enable assessment of their impact separately. If we substitute these variables into Akhor's model

GDP=F(CD,ED,IT,VAT)…….(3.4)

The model in its econometric format becomes:

$$GDP = a_0 + a_1 CD_t + a_2 ED_t + a_3 IT_t + a_4 VAT_t + \mu_t \ldots\ldots (3.5)$$

Where:

GDP = gross domestic product IT = income tax
VAT = value added tax. CD=customs duty
ED=excise duty

where; μ_i is the Error term or other variables that could have lent further explanation to the explained variables but are not included in the model and is assumed to be normally distributed in zero and constant variance.

In consonance with economic theory, it is expected that the level of value added tax, customs duty, income tax and excise duty to a large extent, determine the level of economic growth of a country. All things being equal, a *priori* intercept and the slope of the coefficients are expected to have positive signs. Thus, the *a priori* expectation may be denoted mathematically as: $a_0\ a_1\ a_2\ a_3\ a_4 > 0$. The numerical values of the parameters were estimated by the use of ordinary least square techniques based on econometric computation. To determine the relevant hypothesis, estimates were evaluated for statistical significance based on the relevant statistics of regression output. The explanatory power of the model as a measure of goodness of fit is then decided.

3.2 Data Description and sources

Annual quantitative time series secondary data from 1973-2010 was used for the analysis. The data on five economic variables was used namely the gross domestic product, income tax revenue, value added tax revenue, customs duty revenue and excise duty revenue. The data was obtained from relevant government departments, Kenya Revenue Authority (KRA), Kenya National Bureau of Statistics (KNBS), Ministry of National Treasury, official published documents of the government of Kenya; such as statistical abstract and Economics surveys. Other sources include the World Bank and International Monetary Fund publications and reports. Data was also obtained from internet and library sources.

3.3 Data Analysis and presentation

A combination of cointegration and error correction modeling through regression was adopted in this research. The choice of these econometric techniques is based on their ability to ascertain stationary and test for causality among the variables. The analysis of data was conducted using EViews statistical package Version 7.0. The descriptive and inferential statistics was used in addition in order to build strong conclusions about the impact of indirect tax revenue on economic growth. The study used tables and figures for data presentation.

3.4 Diagnostic Tests

Time series diagnostic tests were carried out to ensure that the model satisfies the classical linear regression model assumptions. The data was subjected to diagnostic tests notably normality of the disturbance term and functional form misspecification, Stationary, serial correlation, multicolinearity and heteroscedasticity. These tests are meant to verify whether the data are normally distributed, stationary and have no mutual correlation among the independent variables and thereafter used it in regressions without fear of getting spurious results.

RESULTS AND DISCUSSION

4.1 Stationarity test

When time series data is non-stationary and used for analysis, it may give spurious results which cannot be used for any meaningful inferences, since estimates obtained from such data will possess non constant mean and variance (Muthui *et al* 2013). Moreover, if the data is not stationary, the value of R-squared is high and this makes it difficult to determine the relationship between the variables. Because this study used time series data, it was important to establish the stationary of the data. The variables are therefore tested for unit root and in its presence differencing is done to alleviate the problem. However, this leads to loss of some fundamental long run information hence biased solutions and this is corrected through Augmented Dickey Fuller Test.

Table 4.1(**Appendix II**) shows the unit root test for stationary using Augmented Dickey-Fuller. The result shows that all the variables (GDP, customs duty, excise duty, income tax and value added tax revenue) are stationary at first difference. Since the t-statistics are greater than the critical values at 1% and 5% level of significance in absolute term. We therefore conclude that all variables are not characterized by unit root problem and accept the hypothesis that says customs duty(CD), excise duty(ED),income tax(IT), value added tax(VAT), and gross domestic product(GDP) have no unit root problem.

4.2 Diagnostic test

Time series data is associated with several problems which require investigation to avoid spurious results upon application of the OLS method of estimation. Primarily, the OLS method assumes serial uncorrelation, correct model specification, homoscedastic error term and absence of correlation between the error terms and the regressors. If these assumptions are violated, the estimated parameters would not meet the statistical threshold. Tests carried out on the data included the normality test, unit root test, multicollinearity test, serial correlation test and heteroscedasticity test.

4.2.1. Testing for Multicolinearity

Multicolinearity among the independent variables implies that they are perfectly correlated. If the explanatory variables in the model are perfectly linearly correlated, the parameters of the model become indeterminate and the method of OLS breaks down (Mukras, 1993). This violation is not a problem of the model or the disturbance term and therefore does not affect the BLUE properties of the OLS estimates (Musaga, 2007).In any practical context, the correlation between explanatory variables will be non-zero, although this will generally be relatively benign in the sense that a small degree of association between explanatory variables will almost always occur but will not cause too much loss of precision. However, a problem occurs when the explanatory variables are very highly correlated with each other (Dakito, 2011).

Table 4.3 **(Appendix III)** shows multicolinearity test between independent variables. The VIF is less than 10, meaning that the variables are poorly correlated with each other. Therefore, there is no Multicollinearity among the independent variables. So it appropriate to use the independent variables simultaneously in order to run the regression model since there is no multicolinarity problem.

4.2.2 Test for Serial Correlation

4.2.2 (a) Durbin Watson Test for Autocorrelation

The Durbin Watson Test was used to test for autocorrelation. The statistic ranges between 1 and 4. A value of 2 indicates that there is no autocorrelation. With Durbin-Watson statistics of 1.954836, it shows that there is no autocorrelation and therefore the model gives a good description of the variables.

4.2.2.(b) Breusch-Godfrey Test for Autocorrelation

Serial correlation is usually as a result of model misspecification or genuine autocorrelation of the model error term. In the presence of serial correlation, ordinary least squares estimators are no longer Best Linear Unbiased Estimators (BLUE). Moreover, the R^2 may be overestimated, standard errors underestimated and t-statistics overestimated (Musaga, 2007) There was therefore further need to

test for serial correlation. Table 4.4 (**Appendix III**) shows the Breusch-Godfrey LM Test for autocorrelation is used to test for serial correlation among the error terms in the model, a violation of which would make emanating results have invalid statistical significance inferences. The null hypothesis states no serial correlation against the alternative hypothesis of serial correlation ($p<0.05$). The results indicate the p-value is 0.6651 which is greater than the critical p-value (0.05) hence accept the null hypothesis of no serial correlation. This shows the nonexistence of serial correlation.

4.2.3. Heteroscedasticity test

Table 4.5 **(Appendix III)** shows the Harvey test of heteroskedasticity. The Probability Chi-Square value for observed R-squared is 0.3997(39.97%) which is more than 5 percent meaning that the null hypothesis that there is no heteroscendasticity in the model is accepted. This shows that there is no evidence for the presence of heteroskedasticity since the p-values are considerably in excess of 0.05.

4.3 REGRESSION MODEL RESULTS DISCUSSION

From the regression results in Table 4.6 **(Appendix IV)**, the R^2 (0.6270) of the regression showed that the independent variables explain about 62.7% of the variations in the dependent variable. It implies that: customs duty, excise duty, income tax and value added tax explained about 62.7% percent systematic variations in output growth over the observed years in the Kenyan economy while the remaining 37.3% percent variation is explained by other determining variables outside the model.

The empirical results of the estimated model show that the probability value of F- statistics (0.000002) is less than the 5 per cent critical level. We therefore accept the alternative hypothesis that the explanatory variables which includes, Customs Duty (CD) Excise Duty (ED), income tax (IT), and Value Added Tax (VAT) are effective determinant factors of the economic growth (GDP). As a result the model was perfectly specified and there is statistical evidence to show that customs duty, excise duty, income tax and value added tax can jointly influence economic growth. The Durbin Watson statistic (1.955) illustrates the absence of auto correlation.

The regression model is of the form:

$$\boldsymbol{GDP} = 0.0679 + 0.1228\boldsymbol{CD} + 0.3709\boldsymbol{ED} - 0.0252\boldsymbol{IT} + 0.0356\boldsymbol{VAT} + \mu \ldots\ldots\ldots\ldots\ldots\ldots (4.1)$$
$$(3.044) \quad (5.968) \quad (-0.3653) \quad (0.5171).$$

4.4 The Statistical Significance of the Parameter Estimate

The statistical significance of the parameter estimate can be verified by standard error test; the adjusted R -squared, t-statistics, the F-statistic and the Durbin-Watson statistics.

4.4.1 Hypothesis One,

The null hypothesis (H_{01}) that custom duty has no significant effect on economic growth in Kenya. We can test the statistical significance of the parameter estimate (a_1) by t-statistics.

The null hypothesis dictates if probability of t-statistics is greater than 0.05 the parameter estimate is not statistically significant. From Table 4.6 **(Appendix IV)**, the results of the t-test had probability values 0.0046 less than 0.05; hence the non-statistical assumption of the parameter estimate is rejected. The decision rule is that the variable is statistically significant at 5% level of significance.

In summary, since the econometric tests applied in this study show a statistically significant relationship between the GDP and customs duty. The estimates of the model parameters show consistency with the theoretical expectations for variable a_1. The estimated value of the partial regression coefficient CD that is a_1 is positive. This implies that Customs Duty correlates positively with economic growth (GDP). At 0.05 level of significance, the coefficient of CD is statistically significant. This suggests that Customs Duty is an

important determinant of growth. We therefore accept the alternative hypothesis which states that: Customs duty has significant effect on economic growth in Kenya.

This logical finding can be explained by the fact that customs duty increases the revenue base of government and make funds available for development purposes that will accelerate economic growth. Secondly, we also discovered that customs duty have more impact on economic growth than Income Tax and Value Added Tax. The reason for this revelation could be attributed to the high rate of imports in the country. As imports increase, the duties on imports will continue to experience growth, and ultimately increase output. This outcome is in tandem with the result of studies carried out by Gober and Burns (1997), Dejong and Ripoll (2005), Adegbie (2011), Okafor (2012), Gacanja (2013), Chibu and Njoku (2015), among others, all of whom reported positive and significant relationship between customs duty and economic growth. However, this finding is inconsistent with the findings of Onduru (2003), Dritsaki and Katerina (2005), Sameti and Rafie (2010), Ebiringa and Emeh (2012) who opined that customs duty has a significant negative effect on economic growth.

The positive and significant relation between customs duty and GDP indicates that policy measures to expand customs revenue through more effective custom administration will impact positively in growing the economy. These results run contrary to the view that higher custom tariffs are universally detrimental for growth. This is important from a policy perspective, since it indicates that the maintenance of high tariff barriers does not appear to be a leading culprit for the economic stagnation suffered by Kenya and other developing countries in the world.

4.4.2 Hypothesis Two

The null hypotheses (H_{02}) that excise duty has no significant effect on economic growth in Kenya. We can test the statistical significance of the parameter estimate (a_2) by standard error test; and t-statistics.

The null hypothesis dictates if probability of t-statistics is greater than 0.05 the parameter estimate is not statistically significant. From Table 4.6 **(Appendix IV)**, the results of the t-test had probability values 0.0000 less than 0.05; hence the non-statistical assumption of the parameter estimate is rejected. The decision rule is that the variable is statistically significant at 5% level of significance

In summary, since the econometric tests applied in this study show a statistically significant relationship between the GDP and excise duty. The estimates of the model parameter show consistency with the theoretical expectations for variable a_2. The estimated value of the partial regression coefficient ED that is a_2 is positive. This implies that Excise Duty correlates positively with economic growth (GDP). At 0.05 level of significance, the coefficient of ED is statistically significant. This further suggests that Excise Duty is an important determinant of growth, thus, we accept the alternative hypothesis which states that: Excise duty has a significant effect on economic growth in Kenya.

This logical finding can be explained by the fact that excise duty can potentially raise a great deal of revenue with little distorting effect. This provides a predictable and stable flow of revenue to finance development objectives that will accelerate economic growth. Excise duty also reduces aggregate consumption and raises savings, stimulating capital accumulation and economic growth. This outcome is in tandem with the result of studies by Gustavo, Vazquez and Vulovic (2013) Okafor (2012), Gacanja (2013) Anyanwu (1997), among others,all of whom reported a positive and significant relationship between excise duty and economic growth. However, this finding is inconsistent with the findings of Ebiringa (2012) and Onduru (2003) who opined that excise tax revenue has a significant negative effect on GDP.

The positive and significant relation between excise duty and GDP indicates that policy measures to expand excise revenue through more effective excise administration will impact positively on growing the economy.

4.5 Cointegration Tests

In this study, we employ Johansen Cointegration test. Therefore, by employing Johansen Cointegration test we make use of Trace statistics and Max-Eigen from the model respectively by comparing their values with the critical values at 5% level. If the values of the Trace/Max-Eigen are greater than the critical values, then, we conclude that there will be long-run equilibrium relationship. Otherwise, the regression residual is not co-integrated.

Table 4.7 (**APPENDIX V**), reports the Johansen's cointegration results. Both Trace test and Maximum Eigen value tests indicate three cointegrating equations at the 0.05 level because the hypotheses at None, At most 1, At most 2, are rejected because they have significant probability values of less than 0.05.The result of the Johansen's cointegration test shows the existence of a cointegrating equation. This means that the estimated parameters of the regression equation are the long-run coefficients that link economic growth and tax revenues. This shows that there exists a long run equilibrium relationship between GDP and the fundamentals used in the model.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

This study investigated the effect of custom and excise duties on economic growth in Kenya. The motivation for this study was primarily premised on the paucity of empirical literature on the indirect tax – growth dynamics in developing economies and the inconsistency of empirics on the issue in the developed economies of Europe and America. In trying to achieve this objective, a combination of Johansen co integration and error correction modeling through regression was adopted for the data analysis. Empirical results of the study indicate that the custom and excise taxes are positively correlated with economic growth in a time series data of Kenya's Economy during 1973 – 2010. The results of Johansen's cointegration test indicate a long-run stable relationship between customs duty, excise duty and value added tax and economic growth. The research closes the knowledge gap induced by inconclusive evidence on the growth effects of custom and excise duties which most often have resulted in situations where results of researches done in developed economies are generalized to developing countries.

5.2 Conclusion

The main objective of the study was to find out the effect of custom and excise duties on economic growth in Kenya from 1973 to 2010. Based on the research findings presented and discussed in the preceding chapter (4), we arrived at a number of conclusions:-

The first objective of this study was to determine the effect of customs duty on economic growth in Kenya for the period 1973-2010. Analysis of research results has shown that customs duty has a positive and significant effect on economic growth in Kenya. Regression analysis results in Table 4.6 **(Appendix IV)**, demonstrate this kind of relationship. It shows that if there is a 1% increase in customs duty revenue would increase economic growth by 0.1228%. Customs duty would increase the revenue base of government and make funds available for development purposes that will accelerate economic growth. From the findings, it can it can be concluded that customs duty has a significant positive effect on economic growth.

The second objective of this study was to determine the effect of excise duty on economic growth in Kenya for the period 1973-2010. Analysis of research results has shown that excise duty has a positive and significant effect on economic growth in Kenya. Regression analysis results in Table 4.6 **(Appendix IV)**, demonstrate this kind of relationship. It shows that if there is a 1% increase in excise duty revenue would increase economic growth by 0.3709%. Excise duty can potentially raise a great deal of revenue with little distorting effect. This provides a predictable and stable flow of revenue to finance development objectives that will accelerate economic growth. From the findings, it can be concluded that excise duty has a significant positive effect on economic growth.

5.3 Recommendations

The results indicate that customs and excise taxes provide a predictable and stable flow of revenue to finance development objectives that will accelerate economic growth. The government should rely more on custom and excise duties than income tax due to its growth prospect and its less distortionary nature, and also utilize the positive relationship between indirect tax and economic growth

to realize efficient government investment expenditure that spurs economic growth. The government should re-visit and review some custom and excise tax laws and regulations that are repugnant to the performance of the custom and excise tax system, so as to block and discourage the loopholes that are being exploited by taxpayers to either evade or avoid tax payments. Constant review of existing custom tax laws will keep the act in pace with the economic reality.

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APPENDICES

APPENDIX I

TABLE 4.1 DESCRIPTIVE STATISTICS OF GROSS DOMESTIC PRODUCT, CUSTOM DUTY, EXCISE DUTY, INCOME TAX AND VALUE ADDED TAX.

Var	Max	Min	Median	Mean	Std.dev	Jarque-Bera	Prob	Skewness	Kurtosis
GDP	2551160	17566	244351	622783.6	719336.6	9.710	0.0078	1.216	3.471
CD	46072	796	80999.5	15164.32	13356.24	3.369	0.1855	0.540	2.020
ED	80567	463	7655	21004.61	24770.66	6.907	0.0316	1.040	2.812
IT	272264	1176	18499.5	50551.24	66173.38	30.99	0	1.783	5.619
VAT	145707	694	23594	39178.82	40980.4	5.908	0.0521	0.9635	2.867

Source: Authors computation.

APPENDIX II

TABLE 4.2 UNIT ROOT TEST AT FIRST DIFFERENCE

Variable	ADF	1%	5%	Decision
CD	-5.544682	-3.626784	-2.945842	Reject H_0
ED	-5.624120	-3.626784	-2.945842	Reject H_0
GDP	-4.349471	-3.626784	-2.945842	Reject H_0
VAT	-5.627301	-3.626784	-2.945842	Reject H_0
IT	-4.96784	-4.23497	-3.54033	Reject H_0

Source: Computation using E-views econometric software, version 7.

APPENDIX III: DIAGNOSTIC TESTS

TABLE 4.3 VARIANCE INFLATION FACTORS.

Variance Inflation Factors
Date: 09/25/16 Time: 22:41
Sample: 1974 2010
Included observations: 36

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	3.92E-05	1.001297	NA
D(CD)	0.000729	1.259000	1.258958
D(ED)	0.001710	1.059275	1.058904
D(IT)	0.002341	1.188650	1.188482
D(VAT)	0.002250	1.407744	1.407646
U(-1)	0.027970	1.020291	1.019554

Source: Computation using Eviews econometric software, version 7.

Where CD=Customs Duty, ED=Excise Duty, IT=Income Tax and VAT=Value Added Tax.

TABLE 4.4 SERIAL CORRELATION RESULTS

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.338161	Prob. F(2,30)	0.7158
Obs*R-squared	0.815741	Prob. Chi-Square(2)	0.6651

Source: Computation using Eviews econometric software, version 7

TABLE 4.5 HETEROSCEDASTICITY TEST

Heteroskedasticity Test: Harvey

F-statistic	0.982374	Prob. F(4,32)	0.4310
Obs*R-squared	4.046574	Prob. Chi-Square(4)	0.3997
Scaled explained SS	5.379728	Prob. Chi-Square(4)	0.2505

Source: Computation using Eviews econometric software, version 7.

APPENDIX IV
TABLE 4.6 REGRESSION MODEL RESULTS

Dependent Variable: GDP
Method: Least Squares
Date: 05/29/14 Time: 11:06
Sample: 1974 2010
Included observations: 37

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.067919	0.014007	4.848889	0.0000
CD	0.122787	0.040333	3.044323	0.0046
ED	0.370923	0.062153	5.967917	0.0000
IT	-0.025155	0.068856	-0.365327	0.7173
VAT	0.035601	0.068842	0.517138	0.6086

R-squared	0.627002	Mean dependent var	0.134550
Adjusted R-squared	0.580377	S.D. dependent var	0.062702
S.E. of regression	0.040617	Akaike info criterion	-3.444173
Sum squared resid	0.052792	Schwarz criterion	-3.226482
Log likelihood	68.71721	Hannan-Quinn criter.	-3.367427
F-statistic	13.44783	Durbin-Watson stat	1.954836
Prob(F-statistic)	0.000002		

Source: Computation using Eviews econometric software, version 7

. **APPENDIX V**

TABLE 4.7 COINTEGRATION TEST RESULTS

Date: 06/30/15 Time: 08:48
Sample (adjusted): 1977 2010
Included observations: 34 after adjustments
Trend assumption: Linear deterministic trend
Series: GDP CD ED IT VAT
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.803382	123.3298	69.81889	0.0000
At most 1 *	0.590193	68.02905	47.85613	0.0002
At most 2 *	0.525285	37.69870	29.79707	0.0050
At most 3	0.200771	12.36730	15.49471	0.1402
At most 4 *	0.130325	4.747624	3.841466	0.0293

Trace test indicates 3 cointegratingeqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.803382	55.30072	33.87687	0.0000
At most 1 *	0.590193	30.33035	27.58434	0.0216
At most 2 *	0.525285	25.33140	21.13162	0.0121
At most 3	0.200771	7.619677	14.26460	0.4187
At most 4 *	0.130325	4.747624	3.841466	0.0293

Max-eigenvalue test indicates 3 cointegratingeqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

Source: Computation using Eviews econometric software, version 7

APPENDIX VI

TABLE 4.8 ERROR CORRECTION MODEL

Dependent Variable: D(GDP)
Method: Least Squares
Date: 08/08/15 Time: 08:55
Sample (adjusted): 1975 2010
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.001232	0.006264	-0.196625	0.8454
D(CD)	0.068626	0.027000	2.541725	0.0164
D(ED)	0.346363	0.041358	8.374727	0.0000
D(IT)	-0.087403	0.048386	-1.806354	0.0809
D(VAT)	0.080937	0.047437	1.706205	0.0983
U(-1)	**-1.028119**	0.167241	-6.147519	0.0000

R-squared	0.786713	Mean dependent var	-0.003142
Adjusted R-squared	0.751166	S.D. dependent var	0.075290
S.E. of regression	0.037557	Akaike info criterion	-3.574902
Sum squared resid	0.042316	Schwarz criterion	-3.310982
Log likelihood	70.34823	Hannan-Quinn criter.	-3.482786
F-statistic	22.13115	Durbin-Watson stat	1.931441
Prob(F-statistic)	0.000000		

Source: Computation using Eviews econometric software, version 7.

APPENDIX V

FIGURE 4.1 HISTOGRAM-NORMALITY TEST RESULTS