

Taxation and private investment: evidence for Kenya

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ABSTRACT

Private investment in Kenya has been low for the last four decades. This has stimulated much concern to the policy makers' bearing in mind that investment is a key variable influencing economic growth. Several economic policies have been designed with an aim of rejuvenating private investment which was robust during the first decade of independence before deteriorating in the other decades. The main purpose of this study was to investigate the impact of taxation on private investment in Kenya. Vector auto-regression technique was used to achieve study objectives. Time series research design was used covering period 1964-2010. The study found that VAT, income tax and establishment of Kenya Revenue Authority (KRA) had negative impact on private investment while excise tax, import tax and tax amnesty impacted positively on private investment. The study concludes appropriate tax system and progressive tax reforms are necessary to ensure that private investors are given enabling environment to establish.

1. INTRODUCTION

Private investment usually impacts positively on economic, social and political development of a country. This type of investment is a good source of employment creation in the country through capital accumulation for productive endeavors. It is able to stimulate economic activity and long-term economic growth by expanding the capacity for production of goods and services (Ahuja, 2007). To create and sustain economic growth, developing countries need to maintain private investment at a sizeable proportion of Gross Domestic Product (GDP). Gillis, Perkins, Roemer and Sodgrass (1987) proposed that this proportion should not be less than 15 per cent at any time, and that the country should target and sustain private investment level of at least 25 per cent of GDP. Increase in private investment may lead to increase in government revenue as a result of taxes from the earnings of factors of production (United Nations, 1993; Ahuja, 2007). Growth in private investment also leads to public investment that complements private sector efforts. This is motivated by an increase in the demand of essential public services that give impetus to private sector development. Foreign direct investment provides an important channel for global integration and technological transfer. This impact directly on the national output through its contribution to higher factor productivity, changes in product and research and development. It can also have an indirect impact through collaboration with local research and development institutions and technology transfer to local downstream and upstream producers (Republic of Kenya, 1965; Ochieng, 1992).

1.1 Trends in Private Investment in Kenya

Kenya has experienced low and sharp fluctuations in private investment over the years. The trends of private investment in Kenya are presented in Figure 1.

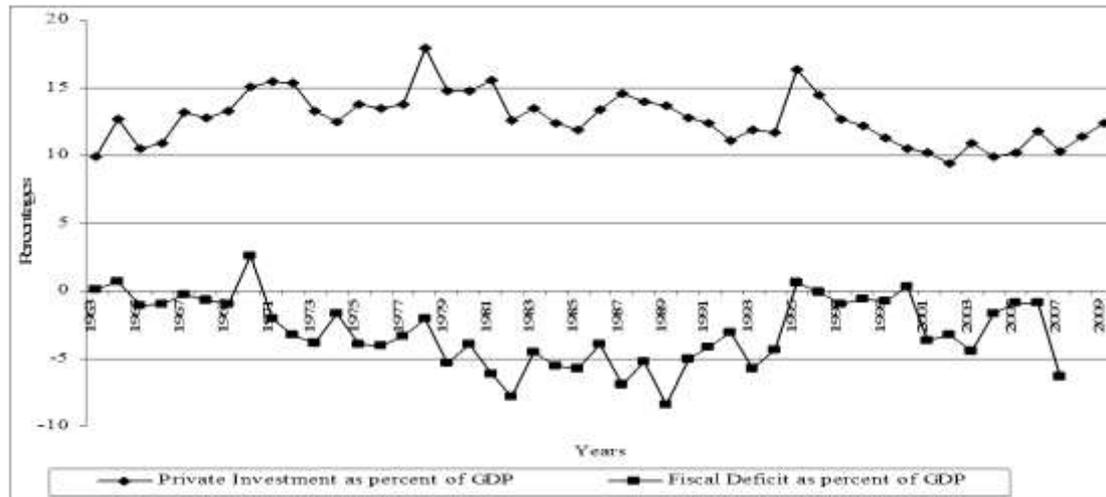


Figure 1: Trends in Private Investment and Fiscal Deficits in Kenya (1963–2010)

Private investment made a remarkable growth in the period 1963 - 1970. This be attributed to commitment demonstrated by the government in promoting private investment. Notably, this is the time when the government published Sessional Paper No. 10 of 1965 on African Socialism and its Application to Planning in Kenya. This paper articulated the measures which were necessary to promote private investment in Kenya (Republic of Kenya, 1965). The private investment declined moderately in the period between 1971 and 1977. This is possibly blamed on first oil crisis of 1973 and severe drought of 1974.

The sharp increase of private investment in 1978 could have been caused by the effects of coffee boom of 1976/1977. This boom increased pa capita income and hence investable funds became adequate. However, the failure to implement adjustment policies following the collapse of the coffee boom and that of East African Community in 1977 undermined private investment. Notably, the disintegration of East African Community severely affected production due to limited market for commodities. Similarly, the second oil crisis of 1979, drought of 1984, the debt crisis and departure from low interest rate policy by the government in early 1980s may be blamed for the downward trend of up to mid 1980s (Legovini, 2002; Kimani, 2005; Were, Ngugi & Makau, 2006). The period 1988-94 is associated with a sharp down turn in private investment. This could be attributed to a number of factors: first, the introduction of structural adjustment programmes by the World Bank and International Monetary Fund (IMF) in 1986 may have been counterproductive. Second, the withdrawal of donor funds led to increased domestic borrowing thereby crowding-out private investment through an increase in cost of capital. Lastly, the events associated with the first multi-party election in 1992, created uncertainties which may have discouraged private investors (Wagacha, 2000; Kabubo - Mariara & Kiriti, 2002; Republic of Kenya, 2003; Were *et al.*, 2006).

In 1995, there was a high growth in private investment as it increased to 16.4 per cent which is the second best performance in the whole period as shown by Figure 1. This could have resulted from the success of policies laid down in Sessional Paper No. 1 of 1994 on Recovery and Sustainable Development, where there was re-allocation of budget resources towards the core functions of the government with an aim of maximizing the productivity of public expenditure. Implementation of these policies and optimism surrounding its application may have crowded-in private investment (Republic of Kenya, 1994). This did not last for long as declining trends again emerged in 1996. This decline may be attributed to a number of factors. First, hotly contested election in 1997 resulted to the tribal clashes, second, destruction of physical infrastructure by *El Nino* rains in 1998, and lastly, cut on development expenditure to achieve budget deficit target of at most 2.5 per cent of GDP as stipulated by Sessional Paper No. 1. of 1986 stifled private investment (Republic of Kenya, 1986, 2002 and 2003; Kiptui, 2005). Though increasing trends emerged again in 2003 the rise in private investment lacked robustness expected after the political and economical transformation that took place in 2003. This could be blamed on the poor implementation of the Economic Recovery Strategy (ERS) of 2003 and slow pace of other reforms that resulted to withdrawal of donors' funding (Ondieki, 2005; Mwakalobo, 2009; Republic of Kenya, 2009).

1.2 Overview of Kenya's Tax Reforms

Tax reform is a change in the tax system of a country. The most important changes in this area include the lowering of tariff rates and achieving horizontal and vertical equity through a wider spread of the burden as well as an improvement in the structure of the tax administration for efficiency in tax collection. The

elements of tax reform are the variables that are affected by a reform in the tax system of a country. They include, changes made to the rates of tax, introduction of new forms of taxes, changes made to the methods of assessment, the changes made to the structure of taxation, and the extensive reorganization of the institutions that administer taxes in the country. Terkper (1994) noted that the expansion in the bases of taxation as a result of liberalizing the economy; the changes made to the structure of taxation; and the extensive reorganization of the institutions that administer taxes were the factors primarily cited for the increases in government revenue in Ghana.

Kenyan tax structure has changed tremendously over the years. As noted by Muriithi and Moyi (2003), massive reforms commenced in mid 1980s following the publication of Sessional Paper No 1 of 1986. Since then, the implementation of major tax reforms introduced number changes to the tax system. There has been a reduction in direct taxes through a widening of tax brackets and gradual lowering of income tax rates. Indirect taxes have been increased to cover the shortfall in revenue. Since indirect taxes are regressive and therefore impose a greater burden on the poor, this shift has been criticized as reducing the redistributive effect of the tax system. Notably, there has also been a shift from taxes on international trade to taxes on domestic commodities. Value added tax (VAT) was introduced in 1990 to replace sales tax which had been introduced in 1973. This shift was motivated by the argument that VAT relative to sales tax had higher revenue potential, and that its collection and administration were more economical, efficient and expedient. In 1995, government embarked on an organizational reform that would modernize tax collection. It established Kenya Revenue Authority (KRA) with an aim of strengthening revenue collections and harmonizing the separate tax collection arms. KRA was mandated to install an efficient and effective system to seal the widespread loopholes in the tax system, bring down the vice of tax evasion, and enlist as many eligible taxpayers as possible (Republic of Kenya, 1995; Wawire, 2006).

1.3 Relationship between Taxes and Private Investment

Taxation is a major source of revenue for the government. This notwithstanding, taxes if not handled well, they can serve as a disincentive to investment instead of helping generate the much needed revenue for economic development. This is because, if taxes become so high that investors cannot pay, they fold up. Government therefore ends up losing the little it can raise from them. Paradoxically, higher tax revenue ensures enough revenue and avoids budget deficits which in themselves either attract investors or ward them off (Norgah, 1998).

Heavy taxation, especially direct taxes, stifles private investment. Taxes have negative implication on cost of production and on profitability. This is because most of the resources available for private investment are diverted and channeled to public use, thereby crowding-out private investment. Income taxes reduce the disposable income and hence contribute to determining how much profit must be ploughed back into the business if any. It is therefore imperative to determine an optimum level of income tax rate that maximizes tax revenue and ensures maximum private investment. Indirect taxes on imports can be used to protect local infant industries from unhealthy competition posed by cheap imports. This promotes private investment in the industries that produce import substitutes. However, if indirect taxes are imposed on inputs and capital used by local producers, it will increase cost of production, which discourages private investment (Bhatia, 1998).

Taxes can be used in promoting investment in certain economic zones initially not very popular to investors. This is applicable in a country where the government extends tax holidays, tax exemptions, remissions and other tax benefits to the investors in specified sectors of the economy or regions. In Kenya, special economic zones referred to as Export Processing Zones (EPZs) are examples of how tax favours can be used to encourage private investment (Investment Promotion Centre, 2000; Wawire, 2000; Karingi, Kimenyi & Ndung'u, 2001).

1.4 The Statement of the Research Problem

Private investment has been recognized as one of the pillars for achieving sustainable economic growth (Kahuthu, 1999; Seruvatu & Jayaraman, 2001). Tax reforms have been undertaken in Kenya with an aim of rejuvenating the economy whose growth slowed down hardly a decade after independence. Tax modernization, institutional reforms, abolishment of some taxes, substitution of taxes, restructuring of tax rates and introduction of tax incentive programmes are examples of reforms that have been undertaken with an aim of making the economy more efficient and giving private investors impetus for establishment.

The ratio of private investment to GDP in Kenya in the period 1963 – 2011 averaged 12.7 percent as shown in Figure 1. This percentage is below the levels being experienced in successful economies and which is required to spur economic growth needed for employment creation and poverty reduction (World Bank, 1995).

According to Herandez-Cata (2000), the ratio of private investment to GDP averaged 16 percent in Latin America, 18 per cent in developed countries and 16.5 percent in newly industrialized countries in Asia. Gillis *et al.* (1987) proposed that this proportion should not be less than 15 per cent of the GDP at any time, and that the country should target and sustain private investment level of at least 25 percent of GDP. To attain economic growth of 10 percent and sustain it, private investment as a ratio of GDP targets in the Kenya's Vision 2030 is at least 22.9 percent by the year 2013, and above 24 per cent by the year 2030 (Republic of Kenya, 2007). However, in 2009 this ratio was only 12.4 percent, implying that realizing the set target in Vision 2030 can be elusive if efforts are not made to increase private investment. Despite government of Kenya intensively reforming taxes with an aim of creating enabling environment for private investors, private investment has remained low. No study has been conducted on how taxes impacts private investment in Kenya. It is therefore not clear what impact tax reforms have had on private investments. This forms the thrust of the study.

1.5 Research Objectives

The overall objective of the study is to analyze the impact of taxation on private investment in Kenya. The specific objectives of the study were to:

- (i) Analyze the impact of various taxes on private investment in Kenya.
- (ii) Investigate the impact of tax reforms on private investment in Kenya.
- (iii) Draw policy implications from the research findings.

2. LITERATURE REVIEW

2.1 Theoretical Literature

It is Keynes (1936) who first called in to attention the existence of an independent investment function in the economy. Keynes observed that, although savings and investment must be equal at equilibrium, savings and investment decisions were made by different people. The implication of his argument was that there was no reason why ex-ante savings should equal ex-ante investments. Keynesian approach further proposed that firms ranked various investment projects depending on their internal rate of return. Thus, given a rate of interest or cost of capital, an investor would choose a project whose internal rate of return exceeded the cost of capital. Keynesian economists formulated the accelerator theory, which made investment a linear proportion of changes in output. In the accelerator model, expectations, profitability and capital costs played no role. A more general form of the accelerator model was the flexible accelerator model. The basic notion behind this model was that, the larger the gap between the existing capital stock and the desired capital stock, the greater would be the firm's rate of investment. Within the framework of the flexible accelerator model, output, internal funds, cost of external financing and other variables may be the determinants of desired capital stock.

According to Tobin (1969) a neo classical economists argued that what mattered was the relation between the increase in the market value of the capital asset due to the installation of an additional unit of capital and its replacement cost. When the increase in the market value of the additional unit exceeded (or was less than) the replacement cost, the firm would want to increase (or decrease) their existing capital stock. This ratio, commonly referred to as marginal " q ", could differ from unity because of delivery lags and adjustment or installation costs. Jorgenson and Hall (1971) formulated an alternative neo-classical approach, which was a version of the flexible accelerator model. In this approach, the desired, or optimal capital stock was proportional to output and the user cost of capital, which in turn depended on the price of capital goods, the real rate of interest, rate of depreciation and the tax structure. Mc Kinnon (1973) and Shaw (1973) emerged with another neo-classical approach which emphasized on the importance of financial deepening and high interest rates in stimulating growth. They claimed that developing countries suffered from financial repression caused by controls on interest rates in a downward direction. They concluded that if these countries were liberated from these repressive conditions, it would induce saving, investments and growth.

Real option theory which addresses the concept of uncertainty in investment theory has received much attention due to irreversible investments and policy inconsistency (Arrow, 1968; Pindyck, 1991). The argument is that since capital goods are often firm specific and have low-resale value, dis-investment is more costly than positive investment. The theory was developed by considering a firm's problem of deciding the optimal time to pay a sunk cost in return for a project of a certain value. Pindyck (1991) and Rodrick (1991) argued that, for some establishments, the firm could not disinvest should market condition change adversely, and this could increase uncertainties for the potential investors. Policy uncertainty is considered as an important determinant of private investment. When a policy reform is introduced, unlikely that the private sector would see it as one hundred percent sustainable, and therefore, it may not lead to more investment.

2.2 Empirical Literature

Summers (1988) argues, based on evidence from 200 major corporations in the USA that capital accumulation would be the same regardless of whether the corporate tax rate is 1 percent or 99 percent. This finding contradicts theoretical argument that changes in tax rates have bearing on private investment levels. Hsieh and Parker (2002) present evidence that the reduction in tax on retained earnings increased the amount of funds available to constrained firms, hence producing an investment surge in these companies. They argued that in countries with poorly developed financial markets, the taxation of retained profits removes internal funds from some firms where the marginal value of these funds exceeds the real interest rate. Barro and Sala-i-Martin, (2004) suggested that evidence have shown that the following countries among the world's twenty fastest-growing economies - Taiwan, Singapore, South Korea, Hong Kong, Botswana, Thailand, Ireland, Malaysia, Portugal, Mauritius, and Indonesia either had low marginal tax rates to begin with or cut their highest marginal tax rates by half between 1979 and 2002.

Karabegovic *et al.* (2004) found that high marginal tax rates reduce people's willingness to work up to their potential, to take entrepreneurial risks, and to create and expand new businesses. Their finding indicates that high and increasing marginal taxes have serious negative consequences on economic growth, labour supply and capital formation. Vergara (2004) study sought to address the issue of the relationship between the corporate income tax reform and the performance of private investment. It reported that when corporate income tax was reduced from 50 percent to as low as 17 percent from mid 1980s to late 1990s, private investment showed an impressive performance, climbing from 12 percent of GDP in 1984-86 to 22.5 percent of GDP in 1995-97.

Bustos *et al.* (2004) study using a panel of 83 publicly held firms concluded that taxes have very little effect on the desired capital stock because they are offset by the fact that the tax law allows for the deduction of interest and depreciation. Romer and Romer (2007) investigated the impact of changes in the level of taxation on economic activity. The findings revealed a powerful negative effect of tax increases on investment. They also found that legislated tax increases designed to reduce a persistent budget deficit appear to have much smaller output costs than other tax increases. Tatom (2007) investigated the importance of tax policy for investment in Morocco and whether there are opportunities to accelerate economic growth through tax reform. The study found that higher corporate tax rates tend to raise the cost of capital to firms and reduce investment.

Djankov, Ganser and Ramalho (2009) conducted a survey by sampling 85 countries in all continents to determine the effect of corporate taxes on investment and entrepreneurship. The results presented evidence that effective corporate tax rates had a large and statistically significant adverse effect on corporate investment and entrepreneurship. Effective corporate income tax was also associated with lower investment in manufacturing, a larger unofficial economy and greater reliance on debt as opposed to equity finance. Karumba (2009) study analyzed the extent to which institutional factors impacted on private investment. The study concluded that, among the institutional factors that were considered for analysis, tax administration was of a greater importance to private investors. Therefore, an efficient tax administration ought to have been put in place and properly enhanced before liberalization of the Kenyan economy. Panagiota (2009) study about the effects of tax incentives on investment found out that results generally depend on the type of tax reform under consideration.

3. METHODOLOGY

3.1 Theoretical Framework

The theoretical literature on the investment maintains that fiscal policy could either crowd-in or crowd-out private investment depending on how this policy is designed and implemented (Keynes, 1936). The analytical framework underlying this position is fashioned in this study in line with the flexible accelerator model that is based on Keynesian investment theory. This model is reformulated to take into account the effect of other factors affecting private capital stock accumulation as proposed by Blejer and Khan (1984).

To derive the theoretical framework for this study, the partial adjustment model is expressed as:

$$\Delta I_t = \beta (I_t^* - I_{t-1}) \quad \dots \dots \dots (1)$$

where I_t^* is desired or optimal investment at a time t , I_t is actual investment at time t , and β is the partial adjustment coefficient reflecting the assumption that the rate at which firms move from actual level of investment to the desired or optimal level is gradual involving lags. Regarding production function, the study

used a Domar type production function that relates output to the stock of capital. The desired capital stock K_t^* was assumed to be proportional to the expected output y_t as given in equation (2).

$$K_t^* = \delta y_t \dots\dots\dots(2)$$

δ represents input-output ratio which is assumed to be constant. This specification assumes a fixed factor proportions production function. This is justified on the grounds of existence of surplus labour in Kenya and thus production is constrained by the size of capital stock. Suppose that because it takes time to build, plan and install new equipment, the actual stock of capital adjust to the difference between the desired capital stock at the current period and the actual stock in the previous period. The actual private capital stock in period t can be expressed as:

$$K_t = K_{t-1} + I_t - \alpha K_{t-1} \dots\dots\dots(3)$$

where K_t is the current period's capital stock, K_{t-1} is the previous period's capital stock and α is the rate of depreciation. Equation (3.) represents the simplest version of the flexible accelerator model. To see its implication, it can be noted that by definition, gross private investment at a time t is given as:

$$I_t = K_t - K_{t-1} + \alpha K_{t-1} \dots\dots\dots(4)$$

By introducing the lag operator L given as $LK_t = K_{t-1}$ and assuming steady state situation, equation (4) becomes;

$$I_t^* = [1 - (1 - \alpha)L] K_t^* \dots\dots\dots(5)$$

where I_t^* is the desired investment at time t . By combining equation (2) and (5) the result is expressed as:

$$I_t^* = [1 - (1 - \alpha)L] \delta y_t \dots\dots\dots (6)$$

Substituting equation (6) into (1), a dynamic flexible accelerator model is obtained as given by equation (7).

$$\Delta I_t = \beta ([1 - (1 - \alpha)L] \delta y_t - I_{t-1}) \dots\dots\dots (7)$$

The dynamic flexible accelerator model imply that the rate at which firms move from actual level of investment to the desired or optimal level is gradual involving lags, and that the variation in investment depends on output.

This study adopted the approach used by Blejer and Khan (1984), which allows private investment to vary with economic conditions. The study further formed a hypothesis that the size of partial adjustment coefficient β , depends on both tax and non - tax variables. This stipulation can be formally expressed as;

$$\beta = f \left(\frac{\sum_{j=1}^m x_{jt}}{I_t^* - I_{t-1}}, \frac{\sum_{i=1}^k z_{it}}{I_t^* - I_{t-1}} \right) \dots\dots\dots (8)$$

where x_{jt} is a vector of tax variables, z_{it} is a vector of non - tax variables.

Tax and non-tax variables are expressed in relation to the size of the discrepancy between actual and desired level of investment. In this specification, the above hypothesized factors affect investment through the process of adjustment from actual investment towards desired levels. In a linear form, equation (8) can be represented as:

$$\beta = \mu_o + \frac{1}{I_t^* - I_{t-1}} \left(\mu_i \sum_{i=1}^k x_{it} + \mu_j \sum_{j=1}^m z_{jt} \right) + \varepsilon_t \dots\dots\dots (9)$$

where μ_0 is the intercept, μ_i and μ_j are the coefficients of tax and non-tax variables, respectively, while ε_t is a white noise error term. By substituting equation (9) into (1) and solving for I_t , the obtained equation is expressed as:

$$I_t = \mu_0 I_t^* + \mu_i \sum_{i=1}^k x_{it} + \mu_j \sum_{j=1}^m z_{jt} + (1 - \mu_0) I_{t-1} + \varepsilon_t \dots\dots\dots (10)$$

In the equation (10), I_t^* , the desired investment is not observable. By substitution of equation (6) into equation (10) the result is expressed as... .. (11)

Equation (11) imply that investment is not only explained by changes in output as proposed by the classical flexible accelerator model (Shapiro, 1992), but also by a vector of both tax and non-tax variables. In the spirit of Blejer and Khan (1984), these variables are found to be affecting the adjustment process from actual to the desired or optimal level of investment.

3.2 Empirical Model

Both theoretical and empirical literatures underscore the role of taxes in determining levels of private investment. The model estimated in this study is derived following Blejer and Khan (1984) but using tax variables only. However, output was retained because it is a core variable in the flexible accelerator model in explaining variation in investment. The aggregate effect of non-tax variables was therefore captured through the variations in output.

$$I = f(Y, MT, VAT, ED, CIT, D1, D2) \dots\dots\dots(12)$$

The variables included in the model are defined and measured as follows:

Private Investment (I): It is the capital accumulation by the private agents for productive purposes. It was obtained by deducting government investment from gross fixed capital formation.

Output (Y): It refers to the total value of final goods and services produced within the economy at any given period. It was measured by the GDP for any given year.

Income Tax (CIT): This is the tax imposed on income of individuals and companies. It was measured by aggregating the taxes that fall under this category.

Value Added Tax (VAT): This is an indirect tax on the domestic consumption of goods and services levied at each stage in the chain of production and distribution from raw materials to the final sale, based on the value added at each stage. It was derived through summing up of all taxes on value added paid by different agents in the economy.

Excise Duty (ED): It is a domestic tax on the production or sale of a commodity in a given country. It was measured by summing up all taxes falling under this category.

Import tax (MT): It is the tax levied on imports by the custom authorities of a country to raise state revenue or to protect domestic industries from efficient or predatory foreign competitors. It was measured by aggregating the taxes that fall under this category.

Establishment of KRA ($D1$): It is the restructuring of government revenue collection institution leading to the establishment of Kenya Revenue Authority in 1995 as a semi autonomous revenue collection government agent. It was taken to be equal to one in the years KRA has been in existence and zero otherwise.

Tax Amnesty ($D2$): It is a conditional forgiveness of tax evaded in the past and interest or penalties charged for tax evasion. It was taken to be equal to one in years 1997, 1998, 2001 and 2005 when there were major tax amnesties and zero otherwise.

3.3 Estimation Techniques

Economic theory does not provide adequate information on Granger causality between taxes and private investment. Therefore, following Fu, Taylor and Yucel (2003) and Sims (1972 and Sims (1980), the study adopted a VAR model for estimating simultaneous shocks to more than one variable and used that to investigate unexpected and equivalent structural shocks. VAR modeling techniques was used to determine the impact of taxes and tax reforms on private investment. Use of VAR in the study was on the justification that it is a theory free method used for the estimation of economic relationships (Sims, 1980).

The study mainly considered tax variables in the VAR since the main focus was on the impact of taxes on private investment. Three different types of VAR exist: The reduced form VAR, the recursive VAR and the structural VAR. The recursive and structural VAR have the same form at the level of matrix equations. The reduced VAR sidestepped the need for structural modeling by modeling every endogenous variable in the system as a function of the lagged values of itself and of all the endogenous variables in the system (Engle & Granger, 1987). This study used recursive VAR to examine the interrelationships among a set of tax variables and private investment and to analyze the dynamic effect of random disturbance on the system of variables. VAR usually yield coefficient estimates which are meaningless because of the lack of theoretical underpinning. However, the coefficient estimates were used in the derivation of impulse responses and in forecasting error decomposition.

4. ESTIMATION RESULTS AND ANALYSIS

Since this study used time series data, it was imperative to test whether data was stationary at levels or needed to be differenced to make them stationary. This was to give assurance on the validity of the results obtained after data analysis. The data series were tested for stationarity using the Augmented Dicky-Fuller (ADF) and Phillips-Perron (PP) methods. The stationarity test results are presented in Tables 1 and 2.

Table 1: Unit Root Results

Variables	Test at Levels	Unit Root Test					
		ADF test			PP test		
		t-statistic	Critical Value (5%)	Value	t-statistic	Critical Value (5%)	Value
Private Investment	Constant	0.8688	-2.8943		0.4387	-2.8929	
	Constant and Trend	-1.7129	-3.4611		-2.0652	-3.4589	
Income Tax	Constant	3.1530*	-2.8936		15.2737**	-2.8929	
	Constant and Trend	2.9207	-3.4599		10.9520**	-3.4589	
Value Added Tax	Constant	3.7035**	-2.9018		10.5961**	-2.9007	
	Constant and Trend	5.0452**	-3.4753		4.9443**	-3.4709	
Excise Duty	Constant	2.7231	-2.8951		3.8647**	-2.8929	
	Constant and Trend	0.8654	-3.4623		-0.0541	-3.4589	
Import tax	Constant	0.0792	-2.8943		-0.5298	-2.8929	
	Constant and Trend	-2.6260	-3.4611		-3.2530	-3.4589	
GDP	Constant	0.8340	-2.8929		1.6774	-2.8929	
	Constant and Trend	-2.9957	-3.4589		-2.9575	-2.4589	
*(**) denotes rejection of the hypothesis at 5% (1%) significant level							

Table 2: Unit Roots Tests Results

Variables	Test at first difference	Unit Root Test			
		ADF test		PP test	
		t-statistic	Critical Value (5%)	t-statistic	Critical Value (5%)
Private Investment	Constant	-5.3348**	-2.8943	-9.9967**	-2.8932
	Constant and Trend	-5.8808**	-3.4611	-10.4073**	-3.4594
Excise Duty	Constant	-1.8126	-2.8951	-10.7510**	-2.8932
	Constant and Trend	-3.8174*	-3.4623	-13.1622**	-3.4594
Import tax	Constant	-4.2858**	-2.8943	-9.7415**	-2.8932
	Constant and Trend	-4.7915**	-3.4611	-10.4844**	-3.4594
Output	Constant	-11.4409**	-2.8932	-11.4709**	-2.8932
	Constant and Trend	-11.6263**	-3.4594	-12.0336**	-3.4594

*(**) denotes rejection of the hypothesis at 5% (1%) significant level

The results in Table 1 show that income tax and value added tax were stationary at levels at 5 percent significant level. At first differences, most macroeconomic data become stationary (Kelly & Mavrotas, 2003). The results in Table 2 indicate that import tax, output and excise tax became stationary at 5 per cent after first differencing.

4.1 VAR Estimation and Diagnostic Tests

The use of VAR estimation technique enabled the study to capture the effect of one standard shock on the tax variables on the private investment. This enabled the study to know whether the effect of the shock was short-run or long-run in nature. In order to increase the degrees of freedom so as to facilitate lagging of variables, the data used were semi-annual. Under the VAR estimations, each variable is expressed as a function of its own present and past values, as well as a function of other variables' present and the past values, and thus, adequate degrees of freedom are required. Lagging variables once was considered to be optimal using Akaike, Schwarz and Hannan Quin information criteria. After the VAR was estimated, several diagnostic tests were carried out to help check its appropriateness. These tests were imperative to avoid spurious estimation results. The results of these diagnostic tests are given in Table 3.

Table 3: VAR Diagnostic Statistics

VAR Condition Check	Statistic	Conclusion
Stability condition	Roots of the polynomial are within unit cycle. Highest is 0.935356	VAR is stable
Lag Exclusion Test	Wald test for 1 lags, Chi-square = 7701.771 p-value = 0.0000	1 lags is important
Residual Serial Correlation	LM test statistic = 421.2734 P-value = 0. 0.4303	No serial correlation at lag order 1
Residual Multivariate Normality	Jarque-Bera test statistic (joint) = 15.1013 p-value = 0.1284	Residuals are multivariate normal.
Residual Heteroscedasticity	Chi-square = 1894.091 p-value = 0.058	Residuals are not heteroscedasticity

The roots of characteristic polynomial revealed that VAR satisfied the stability condition, since all roots were within unit cycle. The residual serial correlation was absent at lag 1 and the VAR also passed the normality test as shown by the results of residual multivariate normality test. Lastly the tests revealed that there was no problem of heteroscedasticity in the VAR estimates.

4.2. The Impact of Various Taxes on Private Investment

The first objective of the study was to analyze the impacts of various taxes on private investment. To achieve this objective, this study used vector auto-regression technique to get impulse responses and variance decomposition analysis of value added tax, income tax, excise tax and import tax on private investment. The impulse responses graphs shows, the results of the responses of private investment over the 40 period horizon, to one standard deviation positive shock to each of the four taxes in the VAR estimates.

4.2.1 The Impact of Value Added Tax on Private Investment

The effect of one standard deviation shock to VAT on private investment is shown in Figure 2

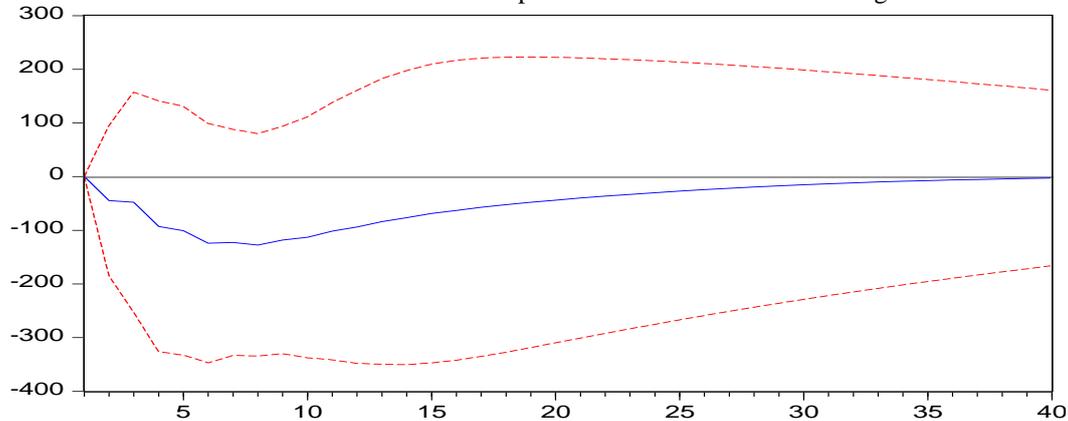


Figure 2: The impact of VAT on private investment

The response to one standard deviation innovation to VAT resulted in a stable time path, which declined to zero with respect to private investment. The effect of a one standard deviation shock on VAT, would last for thirty six semi-annual periods after which it disappears. The effect was persistently on the negative territory. This implies that the imposition of VAT deterred private investment. On its inception, VAT was meant to address the problem of over relying on direct taxes such as personal income taxes and corporate taxes which were hindering the growth of private investment (Republic of Kenya, 1990; Mureithi & Moyi, 2003). However, it turned out that the enthusiasm with which VAT was received by the private investors faded out. The rent seeking activities of the tax officials; increase in the commodities that are subject to VAT; complicated tax system, stringent compliance requirements and contraction in demand for the commodities as a result of increase in price are possible explanations as to why VAT had been a setback to private investment (Mureithi & Moyi, 2003; Wawire, 2006; Wawire, 2011).

4.2.2 The Impact of Income Tax on Private Investment

The impact of one standard deviation shock to income tax on private investment is shown in Figure 3

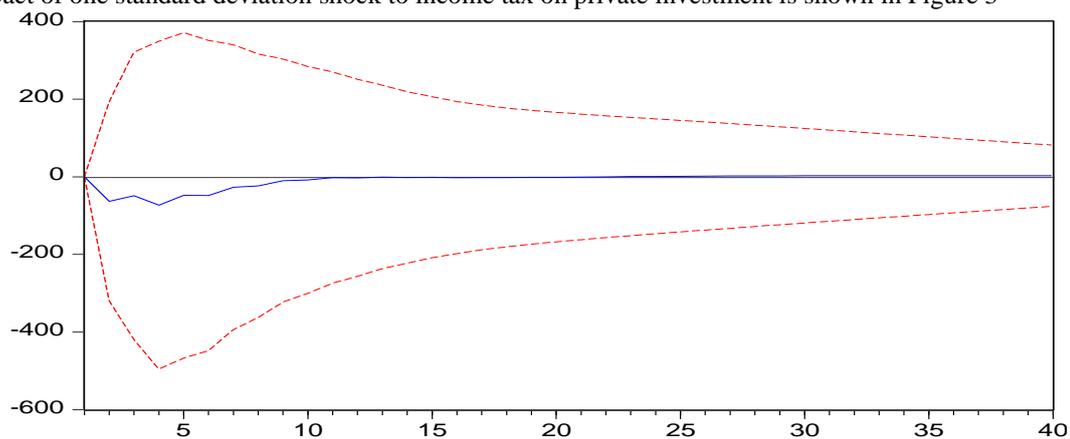


Figure 4.2: The impact of income tax on private investment

The response to one standard deviation innovation to income tax resulted in a stable time path that declined to zero with respect to private investment after twelve semi-annual periods as shown in Figure 3. The negative effect lasted for ten semi-annual periods after which it fizzled out. The evidence of negative effect agrees with the results obtained by Vegara (2004) and Djankov *et al.* (2009), who found that income tax was an impediment to private investment. Income tax reduces the return on the investment thereby discouraging expansion of their

activities. The fact that the government of Kenya is currently subjecting its residents to taxes at very high rates compared to other countries in the region, has accelerated capital flight thus affecting private investment adversely. Moreover, most of the reforms that have taken place on income tax have been biased towards improving revenue sources for the government, and to some extent, in favour of low income earners whose economic status do not propel them towards investment. Figure 3 shows that the effect on private investment of the income tax is not pronounced and is short lived. Probably, this could have resulted from the declining emphasis on direct taxes due to large cases of tax evasion motivated by inefficient tax collection mechanism. This implies that many private investors are not influenced by income tax, since they can evade it as well (Wawire, 2006).

4.2.3 The Impact of Excise Duty on Private Investment

The impact of one standard deviation shock to excise duty on private investment is shown in Figure 4.

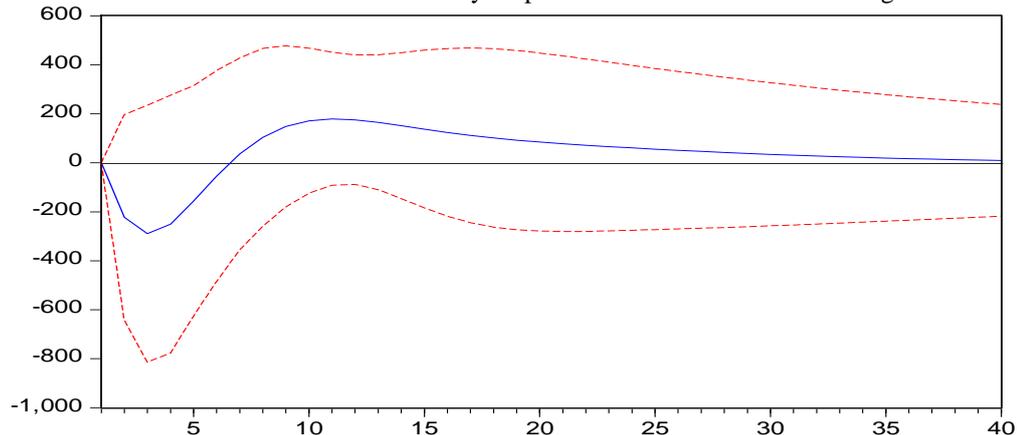


Figure 4: The impact of excise duty on private investment

The response to one standard deviation innovation in excise duty resulted in a stable time path, which declined to zero with respect to private investment as shown in Figure 4. The effect of one standard deviation shock on excise duty took thirty eight semi-annual, periods to fizzle out. The effect was initially on the negative side for six semi-annual periods, and then moved to positive territory for thirty two semi-annual periods, before moving to the equilibrium. This suggests that excise duty has a mixed effect on the private investment and the effect is felt for long in the economy. Since the impact was mostly on the positive territory the study concluded that excise tax is more of an encouragement to private investment. There is no existing literature on the positive effect of excise duty on private investment, and therefore this study makes an important contribution in this area. Excise duty on demerit goods raise their prices, but since most of commodities subject to this tax have inelastic demand their production is not affected (Karingi *et al.*, 2001). Excise taxes collected by government are restored back to the economy in form of public expenditure which crowd in private investment. This possibly explains positive impact on private investment by this tax.

4.2.4 The Impact of Import Tax on Private Investment

Figure 5 shows the effect of a one standard deviation shock on the import tax on private investment.

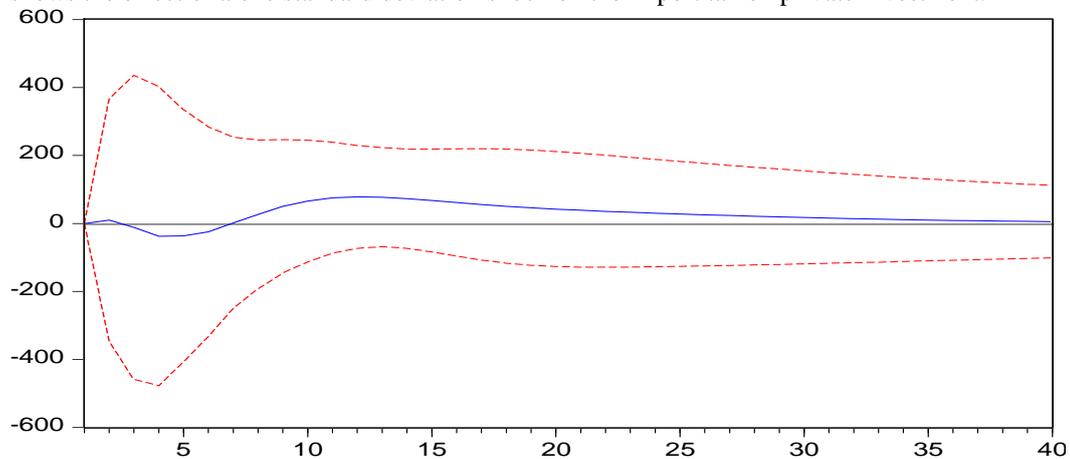


Figure 5 The Impact of import tax on private investment

The response of private investment to one standard deviation of import tax resulted in a stable time path, which declined to zero. The results showed that a one standard deviation shock on import tax has a mixed effect on private investment that lasted for forty semi-annual periods. Since the impact was dwelt on positive territory longer import tax impact favourably on private investment. In the existing literature, the effect of import tax is found to be more of an encouragement to private investment instead of an impediment. Newbery (1987) and Coady (1997) argued that import tax and other barriers on international trade of any sort tend to encourage domestic production of final consumer goods while permitting relatively free imports of capital or intermediate goods. This tends to be associated with high rates of effective protection, high cost of domestic production, and creating a bias against exports. Consequently, while reducing the dependence of the country on imports of final consumption goods, the economy becomes highly dependent on imports of intermediate goods. The positive effect could also have been as a result of increase in aggregate demand through the multiplier effect as result of expansion of local business enterprises. This could be the possible explanation as to why the effect of import taxes was more on the positive territory.

4.3 The Impact of Tax Reforms on Private Investment

The second objective of the study was to analyze the impacts of tax reforms on private investment. To achieve this objective, this study used vector auto-regression technique to get impulse responses and variance decomposition analysis of establishment of KRA and extension of tax amnesty on private investment. The impulse responses graphs shows, the results of the responses of private investment over the 40 period horizon, to one standard deviation positive shock to each of these dummy variables in the VAR estimates.

4.3.1 The Impact of Establishment of KRA on Private Investment

Establishment of KRA was captured by a dummy which assumed the value of one during the years KRA has been in existence, and zero otherwise. Figure 6 shows the impact of one standard deviation shock on establishment of KRA on private investment.

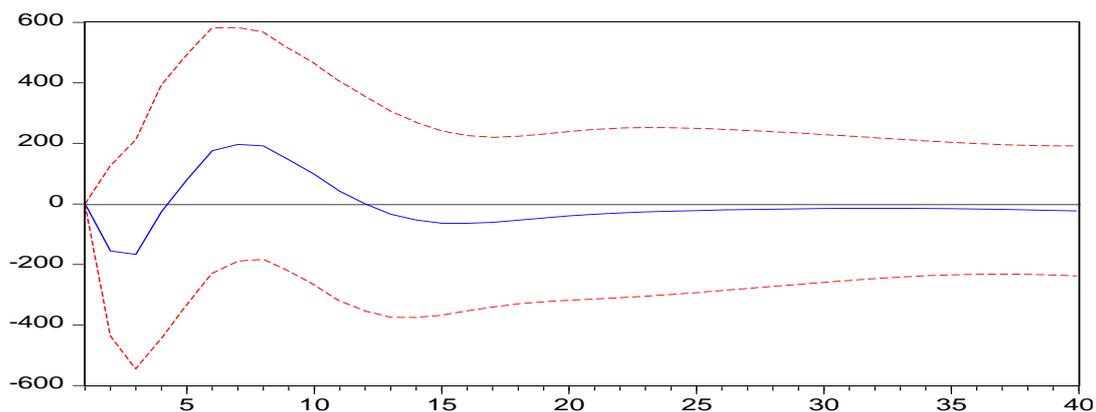


Figure 4.10: The Impact of establishment of KRA on private investment

As shown in Figure 5, upon its establishment, KRA led to decline in private investment for the first four semi-annual periods. The shock led to the improvement in private investment between second and twelfth semi-annual periods. However, private investment embarked on a downward trend before finally fizzling out towards the end of the period. Since the impact was mostly on negative side establishment of KRA was more of an impediment to private investment. As noted by Mureithi and Moyi (2003), introduction of a new tax administration system, as a semi autonomous government institution was expected to provide efficient tax services to tax payers (investors), and therefore, make them prefer Kenya over other destination for private investment. The empirical findings that establishment of KRA hindered private investment in Kenya was similar to Karumba (2009). This result could be attributed to the fact that investors were scared of a more tight tax system, which would make tax avoidance and evasion impossible. In addition, it could be that there was an accompanying increase in taxes which made investors to prefer other low tax destinations.

4.3.2 The Impact of Tax Amnesty on Private Investment

Tax amnesty was captured by a dummy variable in the case of conditional forgiveness of tax evaded in the past, and interest or penalties charged for tax evasion. It was equal to one in year 1997, 1998, 2001 and 2005 when there were tax amnesties, and zero otherwise. Figure 7 shows the effect of a one standard deviation shock on tax amnesty on private investment.

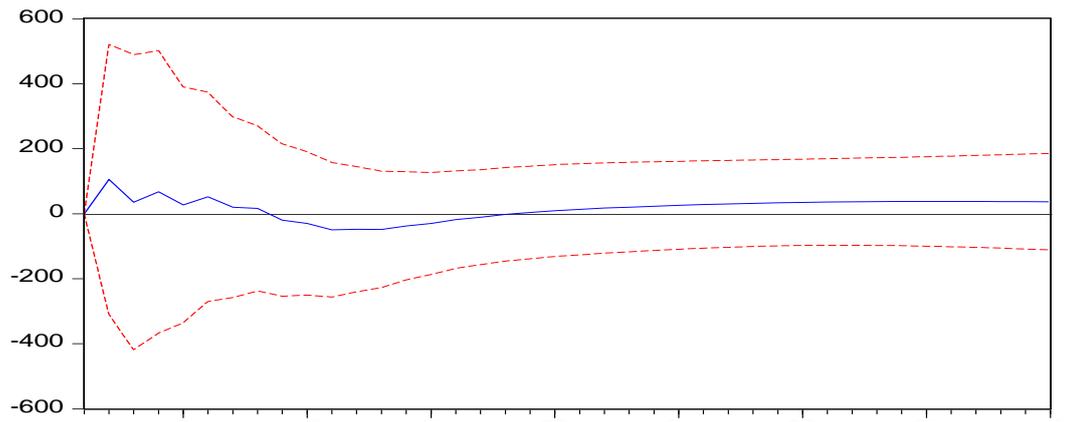


Figure 7: The Impact of tax amnesty on private investment

The response to one standard deviation innovation to tax amnesty resulted to increase in private investment for the first eight semi-annual periods. The negative performances followed, and continued until the eighteen semi-annual periods beyond which the performance of private investment was positive. In a nut shell, tax amnesty impacted on the private investment positively. The impact of tax amnesty having positive effect on private investment implied that by extending tax amnesty to delinquent tax payers, it would mean that investors would have an opportunity to declare their income truthfully. Thus, the fear of the taxes being backdated or taxpayers being harassed by corrupt tax officials with frequent and unrealistic demand will vanish (Mureithi & Moyi, 2003; Wawire, 2003; Wawire, 2006).

4.4 Forecast Error Variance Decomposition Analysis

The forecast error variance decomposition (FEVD) technique was used by this study to determine the proportion of the variance in private investment series that was due to own and other identified shocks at a given period, following Enders (2004) and Stock and Watson (2001). This was an alternative method to the impulse response functions for examining the impact on private investment of shock in fiscal variables. The technique determined how much of the forecast error variance in private investment was explained by innovations in each of the explanatory variables over a series of a time horizon (Enders, 2004).

Table 4.1 shows the decomposition of the variation in private investment into its (significant) component shocks. The results in the table show the variations in private investment in selected periods of the 40 semi-annual periods.

Table 4: Variance Decomposition of Private Investment

Period	S.E.	I	Y	VAT	ED	CIT	MT	D1	D2
1	1925.58	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	3040.79	64.81	5.2	3.65	8.59	4	5.27	4.14	4.26
10	3270.21	58.28	5.122	4.812	9.002	4.462	6.502	5.442	6.372
15	3404.41	54.10	5.062	5.072	9.672	4.452	8.022	5.382	8.232
20	3507.52	51.47	4.95	4.95	9.45	4.75	8.39	5.28	10.76
25	3587.80	49.62	4.83	4.87	9.36	5.38	8.37	5.14	12.46
30	3642.78	48.40	4.77	4.9	9.49	5.99	8.38	5.07	12.99
35	3684.02	47.55	4.772	5.032	9.812	6.452	8.402	5.062	12.912
40	3724.32	46.73	4.82	5.21	10.23	6.73	8.39	5.07	12.81

The results show that most of the variations in private investment were due to its own shock at 100 percent in the first semi-annual period. The variations of own shocks in private investment reduced to 64.81 percent in the fifth semi-annual period, and even to a lower level as the forecasting horizon increased. By the fortieth semi-annual period, the variations due to private investment own shock was 46.73 percent. It was further noted that the variations in private investment in the first semi-annual period brought about by other variables, was zero, implying that on impact, the variations in private investment were totally own shock.

Further observations of the results reveal that the impacts of other variables apart from private investment in the system increased with the increase in forecast period. Thus private investment had feedback effects with the variables in the system, and the effects were multi-directional. The results in Table 4 further reveals that, concerning variations in private investment caused by taxes, contributions by the excise tax were the largest, followed by import tax, income tax and then value added tax in that order. This underscored the role played by indirect taxes in influencing private investment compared to direct taxes. Variations in private investment caused by establishment of KRA were minimal, while tax amnesty caused lowest variations compared to all other variables in the study period. This implies that extension of tax amnesty had a negligible effect in encouraging private investment.

5. SUMMARY OF FINDINGS, CONCLUSION AND POLICY RECOMMENDATIONS

The low levels of private investment in Kenya has been of concern to policy makers, especially its implication on the realization of one of the Kenya Vision 2030 targets of scaling economic growth to 10 per cent, and sustaining it for a long period. The study used the vector auto-regression model, which yielded impulse responses and variance decomposition analysis of value added tax, income tax, excise duty, import tax, establishment of KRA and tax amnesty. The results showed that income tax and value added tax deterred private investment. However, the effect of income tax was short lived but that of value added tax persisted. The findings further indicated that excise duty and import taxes had mixed outcomes on private investment. However, the effect was more on positive territory, which led to a conclusion that these taxes promoted private investment. The results further revealed that establishment of KRA in 1995 had a negative effect on private investment in Kenya. Tax amnesty was found to be encouraging private investment.

The findings of the study led to a conclusion that tax chargeability should be evaluated, and the tax system overhauled because if it is left unchanged, it may produce many unintended distortions in allocation of resources. Particularly, government should streamline tax collection activities, remove bureaucracies associated with tax administration as well as ensuring integrity within the ranks of tax officials. The study recommends that indirect taxes such as excise duty and import taxes should be relied on more in contrast to VAT or income tax. It was noted further that import and excise taxes are elastic and generate revenue with limited administrative costs. They are also less inconveniencing to the tax payers because they are hidden in the prices of the commodity being transacted, and therefore their increase may not necessarily lead to contraction in demand of the targeted commodities.

In addition the study recommended that government should embark on tax reforms in the areas that enhance private investment. This is because tax reforms were found to be imperative to private investment. An important component of these reforms is institutional reform of tax collection authority through establishment of KRA. The findings indicated that establishment of KRA deterred private investment. Therefore in order to enhance robustness and efficiency in tax administration, with ultimate goal of promoting private investment, KRA should consult all stakeholders, especially Kenya Private Sector Alliance on matters that impact negatively on private investors.

Lastly, occasional and wisely executed tax amnesty measures should be considered by the government. This is because the findings indicated that giving tax amnesty to tax payers was encouraging private investors. First, the study found that tax amnesty will cushion investors against rent seeking activities of the corrupt tax officials. Second, tax amnesty ought not to be too frequent. This is because, the faithful investors will be made to carry heavy burden of high taxes, since the government will have to increase tax rates or introduce more taxes to bridge the revenue gap emanating from tax evasion. This could result to relocation of despondent investors to other destinations with no such setbacks. Lastly, the tax amnesty should never be anticipatable so as not to encourage tax evasion on the errant tax payers as well as apathy on the faithful investors; this may slow down investment activities.

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