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**THE EFFECTS OF TAX REFORMS ON TAX  
PRODUCTIVITY IN KENYA**

**BY**

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## DECLARATION

This project is my original work and has not been submitted for a degree in any other University



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## **DEDICATION**

This paper is dedicated to my parents Sophia and Jeremiah Kieleko, my brother Japheth and my sisters Mary, Labby, Hellen, Damaris, Rose, Deborah, Phyllis and Stella, whose wisdom and wise counsel have been the cornerstone in my quest for academic excellence.

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## **LIST OF ABBREVIATIONS**

|             |   |
|-------------|---|
| <b>BRP</b>  | <b>Budget Rationalization Programme</b>                       |
| <b>DIM</b>  | <b>Divisia Index Method</b>                                   |
| <b>DID</b>  | <b>Domestic Taxes Department</b>                              |
| <b>GDP</b>  | <b>Gross Domestic Product</b>                                 |
| <b>IMF</b>  | <b>International Monetary Fund</b>                            |
| <b>LTO</b>  | <b>Large Tax Payers Office</b>                                |
| <b>LDC</b>  | <b>Less Development Countries</b>                             |
| <b>KRA</b>  | <b>Kenya Revenue Authority</b>                                |
| <b>OECD</b> | <b>Organization for Economic Co-operation and Development</b> |
| <b>PAM</b>  | <b>Proportional Adjustment Method</b>                         |
| <b>PIN</b>  | <b>Personal Identification Number</b>                         |
| <b>SAP</b>  | <b>Structural Adjustment Programme</b>                        |
| <b>TMP</b>  | <b>Tax Modernization Programme</b>                            |
| <b>VAT</b>  | <b>Value Added Tax</b>  |

## ABSTRACT

The key role of tax reforms in Kenya was to ensure that the tax systems put in place could achieve revenue mobilization and reduce fiscal imbalances persistent in Kenya. This was to be achieved through tax laws and policies intended to facilitate responsiveness of individual and overall tax system to national income.

This study evaluates tax revenue productivity in Kenya for the period 1973 -2003. The productivity is measured through buoyancy and elasticity. The coefficients are measured through log regression of the taxes to the Gross Domestic Product. The analysis of this study was carried out using the Proportional Adjustment Method (PAM) that was considered appropriate due to its superiority in capturing the effects of tax reforms on discretionary tax measures and tax productivity.

The analysis shows that there has been a considerable improvement of the tax revenue productivity and that the reforms made in this period had significant effect on the responsiveness of the tax system. Thus, the 1986 Tax Modernization and 1987 Budget Rationalization programmes had a positive impact on the Kenya's tax productivity especially on income and import taxes. The findings reveal that reforms had greater impact on the elasticity than buoyancy. This implies that the growth in tax revenue during the reform period was accounted for by the automatic changes rather than the discretionary policy.

This study notes that the most rigid tax system was VAT. The empirical analysis indicates that reform raised the productivity of the tax system with the exception of the sales tax/VAT. This implies that significant review and rationalization of the rates under VAT is also important. Further improvements are required in the area of reduction of rates and exemptions, and increasing VAT administration capacity through a higher budgetary outlay.

## CHAPTER ONE: INTRODUCTION

### 1.1 Background

#### 1.1.1 Nature and Purpose of a Tax

*Unlike elephants which are easy to recognize but difficult to define taxes are difficult both to define and identify.* (Messere and Owens, 1988, p.264)

Nevertheless the Organization for Economic Co-operation and Development (OECD) provides a definition formulated after many hours of debate among statisticians and tax specialists. This states, 'the term taxes is *confined to compulsory, unrequited payments to general government*' (OECD, 1988, P.37)

Sommerfold et al (1980) defines a tax as "any non penal yet compulsory transfer of resources from private to the public sector levied on the basis of a predetermined criterion without reference to specific benefit received, in order to accomplish some of a nation's economic and social objectives."

A tax is non penal transfer of resources because it is not devised solely to prevent a person from engaging in some specific act deemed detrimental to society unlike a fine. It is a withdrawal from the circular flow of income; from the private sector to the public sector. It is a transfer payment in that it is made without reference to a specific benefit received from the government as a quid-pro-quo.

Taxes are most frequently classified as direct or indirect. Direct taxes are levied on the income, profits, capital gains and wealth of persons and companies, the most well known direct tax being personal income tax. Indirect taxes are levied on transactions, goods and services, and so only indirectly on persons, the most well-known example being Value Added Tax (VAT).

Tax is a major fiscal tool in which government influences, directs and sometimes controls economic activities in a view to achieve desirable social and economic objectives. A particular tax may affect the economy in many ways and may be designed to serve a variety of purposes. These objectives are: allocation role, distributive function and stabilization function. (Musgrave & Musgrave 1989).

Tax systems are usually designed independently of the purposes for which the finance is raised. From the point of view of economic theory, it is desirable that the tax system reflect both efficiency and equity considerations.

Real taxation is therefore necessary to reduce private sector's claims on an economy's resources so that they are released for use by the public sector in a non-inflationary way. This is the allocation role of taxation. The market does not provide some goods, or over or under provides, so the public sector corrects this misallocation and taxation is one half of the process (public spending and provision is the other half). Taxes are also used to redistribute income, and for Kenyans, they have a role to play in the management of demand in the economy.

Prior to 1990, the business environment was stable and the government had a dominant role to play in the way business was conducted. Donor assistance and taxation were the two ways used by the government to mobilize resources and facilitate economic development. For this reason, there was no concern about the economy's ability to sustain itself. After the 1990's the economic liberalization efforts put in place included; price decontrols, reduction in government spending, privatization of state enterprises, financial sector reforms, tax reforms, selective withdrawal of subsidies, and selective removal of import restrictions. The structural Adjustment Programmes (SAPs) recommended by the World Bank and the international Monetary Fund (IMF) triggered the series of economic reforms as a condition for quick disbursement of financial aid from the two bodies when the government was faced with serious balance of payment problems.

Among the prescriptions of the SAPs initiated by the World Bank for the developing countries are policies for deficit reduction aimed at achieving real economic growth with price stability and balance of payments viability. Fiscal crisis signaled by persistent ever-growing deficits have been common in most developing countries. Thus governments are willing to contemplate fiscal reforms (*Kusi 1998*). Financing of overall deficits creates particular problems because too high dependency on external loans could result in future difficulties for the balance of payments whereas domestic sources may only be able to provide part of the funds required unless a deliberate policy of excessive domestic deficit financing is followed at the risk of aggravating inflationary pressures.

These problems have then translated into major fiscal crisis for many developing countries. Implicit in what has been said so far is the assumption that expenditure policies of developing countries are selected and executed in an efficient manner.

As direct avenue to increased revenue needs, developing countries have been committed to raising their revenues. Projections have had to be made of additional revenue, which can be realized within the existing tax system. Such projections have indicated the need to activate additional source of revenue generation. Developing countries have thus engaged in the pursuit of appropriate tax policies with the immediate goal of reducing deficit while at the same time enhancing growth.

The desirability of fiscal deficit reduction arises from the negative consequences associated with persistent increased deficits. Though the issue as to whether fiscal deficit reduction would promote growth is debatable, in the view of the fact that some expenditure commitments have a direct positive bearing on increased welfare, the magnitude of the deficits in developing countries have prompted a lot of concern. Deficits have been associated with double-digit inflation rates and balance of payment crisis. Given the fact that donor funding is not forthcoming; the desirability of deficit reduction arises even more. This has meant continued reliance be placed upon discretionary tax measures. Such measures, though previously considered inimical to sustained growth of industry and business in view of the fact that they cause uncertainties, have become a necessary tool for raising revenue (*Kusi, 1998*)

The declining donor funds phenomenon of the 1980s and 1990s has made it quite pertinent for developing countries to look for other sources of government revenue and one obvious source would be the tax revenue. Taxes have thus begun to play a more important role in funding government operations.

Quite understandably a compliant tax payer would ask the question, "Why should the government penalize honest tax payer by raising tax rates while so much revenue is lost through evasion?" To obtain more revenue, should the government rely on improving tax administration as Lewis notes or should it achieve additional revenue through increased tax rates or through tax policy changes? Any extent of tax evasion, coupled with tax revenue inelasticity, indicates some administrative weakness.

### **1.1.2 Tax Reforms**

There is no consensus on an ideal profile of a developing country tax system. Criteria mostly used in public finance are revenue adequacy, allocative neutrality, equity and efficiency of tax administrative (*Musgrave 1980*) Though some reforms only achieve part of the above objectives, trade offs between the objectives is often the outcome such as replacement of the sales tax with the Value Added Tax (VAT). An indexed tax system will require more administrative complexities while offering the benefits of enhanced vertical and horizontal equity.

As mentioned earlier, fiscal deficits have been a common problem in developing countries. Related to this has been the excessive reliance on the trade taxes and tax



incentives, partial coverage of income taxes, complexities associated with identifying and taxing capital incomes, the urgent need to redesign the indirect taxes, the coordination of trade taxes, weak tax administration as well as widespread tax evasion and avoidance (*Chand 1973*). A number of countries have thus made efforts to grapple with these issues. A review of experiences indicates that as in other economic policies where reforms have been successful, a number of common elements have been present and these include: a well thought program of action, support for major policy makers and systematic implementation and monitoring, reduced use of tax incentives and instead aiming at broader and simpler tax basis on which lower rates are imposed. Procedural demands that complicate administration are minimized and instead training and upgrading the administrative personnel is emphasized. (*Chand 1973*)

Common structural elements in reforms include turning to VAT to replace other forms of commodity taxes while exempting basic foodstuffs to reduce taxation of the poor (*Bhatia 1971*). To obtain greater progress in the distribution of indirect tax burden, many tax systems have redesigned their excise tax to fall more heavily on items of luxury.

In the area of income, both the personal and corporate income taxes have typically been modified so that lower rates are applied to broader bases (*Musgrave 1980*). The personal income tax have been expanded in a variety of ways including the required taxation of fringe benefits, consolidation of deductions and exemption and greater reliance on presumptive levies for certain hard to tax groups in the economy. Introduction of the

personal relief is also seen as a reform to exempt the very low income groups from paying personal income taxes.

Through these developments there is now much less emphasis on achieving redistribution of welfare through the tax system as advocated by the optimal tax theory (*Kusi 1998*) and a corresponding greater emphasis on achieving revenue adequacy, economic neutrality and simplifying of the tax system to make it correspond to administrative capabilities.

### **1.1.3 Tax Productivity**

The most important motivation for the less developed countries (LDC's) tax reform is the need to raise more revenue (*Kusi, 1998*) It is necessary that there be a quantitative measure to evaluate success in stimulating public resources through tax policy. One such measure is the responsiveness of tax revenue structures to national income. This responsiveness is known as productivity of a tax system. Traditionally the productivity of a tax system is measured using buoyancy and elasticity (*Kusi, 1998*). Buoyancy of a tax system refers to the responsiveness of tax revenue to changes in National income and to discretionary changes. Discretionary changes are the changes in the tax rates and rules governing the tax system. A high elasticity (that is a tax elasticity coefficient of more than unity) is particularly desirable since it allows growth in expenditure to be financed by raising tax revenue without recourse to the politically unpopular decision to raise tax rates (*Mansfield, 1972*).

## 1.2 Statement of the Problem

The importance of tax revenue collection and administrative efficiency cannot be overemphasized. Revenue criteria is usually the dominant consideration since governments of less developed countries have increasingly become aware of the active role which budgetary measures can play not only in initiating growth but also in maintaining political power (Gobin, 1980).

Faced with the problem of increasing tax revenue, most developing countries adopt measures to change tax policy. These measures include changes in tax rates and /or widening the tax base. Tax performance may be increased by improving on tax administration and especially to achieve a high compliance rate. As Lewis (as quoted in (Taylor 1970) observed, "The direct taxes of individuals (in Nigeria) can be doubled by better administration and reducing evasions, even without an increase in rate". Tax revenue may be increased by improving on tax administration and especially to achieve a high compliance rate. To improve on tax collection the course in many countries may be first to strengthen the existing administrative machinery and then when this has been accomplished face the basic issues of tax reform (Surrey, 1964)

During the period 1964-1977, the government of Kenya was able to finance all its current expenditure and part of the development expenditure using recurrent revenue receipts, and hence incurred minimal fiscal deficits. This was made possible by a healthy flow of donor assistance in terms of grants and projects. However, in 1970s after a series of both internal and external shocks, the government experienced chronic fiscal deficits. The

persistence of these deficits has been attributed to uncontrolled public expenditure and possibly an inelastic tax system. Neither tax policy nor tax administration managed to mobilize additional resources on a sustainable basis. The tax structure suffered the following drawbacks in 1986; the tax revenue GDP ratio was low at less than 22%, compliance and administration costs were still very high, narrow bases and the tax administration was characterized by leakage loopholes that encouraged tax evasion and avoidance.

Kenya tax structure has changed tremendously over the years, massive reforms commenced in 1986 following the publication of Sessional paper I of 1986. Since then, implementation of major tax reforms introduced major changes in the tax system. Within the period of study (1973 to 2003), many changes have occurred to the tax system in Kenya including: replacing sales tax with Value Added Tax, Introduction of the Tax Modernization Program, Formation of Kenya Revenue Authority to put tax administration under one bracket as well as many changes in tax rates and bases. However, it has not been clear whether these tax reforms led to a significant change in the tax revenue. It is against the foregoing that a question arises: To what extent has the tax reforms impacted on the tax yield in Kenya? It is therefore necessary to analyze the effect and investigate the implications of the tax reforms on tax revenue in Kenya.

### **1.3 Objectives of the Study**

The objectives of the study are:

1. To analyze and compare the tax elasticities and buoyancies of the tax system in Kenya during the pre and post tax reform period.
2. To determine the effect of the tax reforms on tax productivity in Kenya.

### **1.4 Rationale of the Study**

Against the background stated in the problem statement, Kenya adopted the Tax Modernization Programme (TMP) in 1986 and the Budget Rationalization Programme (BRP) in 1987. While the TMP sought to enlarge the government revenue base in order to enhance the elasticity of the tax system, BRP was aimed at regulating the government expenditure through strict fiscal controls.

Although Kenya embarked on massive tax reforms in 1986, little is known about the performance of the reform in terms of raising revenue mobilization capacity of the tax system. It is known how the reforms have affected each tax source. The empirical results of this study are expected to inform about the process of tax reforms in Kenya, Kenya's tax reform effort to enhance flexibility (i.e buoyancy and elasticity) of the tax system, components of the tax structure that have been most responsive and the reason for their responsiveness, and establish the tax handles which are rigid and the reason for their rigidity.

The study will prove important to a number of stakeholders.

**To Tax Authorities and Policy makers:** This study will identify some tax administrative factors that need attention of the tax authorities and officers for correction.

**Tax Payers:** Tax payers would wish to have a tax system that is certain, convenient, simple, fair and economical. This study will reveal whether this has been achieved in the administration of the various taxes administered.

**Consultants:** This study will bring out a deeper understanding of the Kenyan Tax system and highlight the key problems faced by the tax payers. The study will therefore help tax consultants to solve well tax payers problems.

**Academicians:** The study will offer an extension of knowledge of tax system in Kenya and reach conclusions that will be valuable in understanding the key factors considered or to be considered by policy makers in their endeavor to achieve sustainable economic growth and development. It will also provide a basis for further research.

## CHAPTER TWO: LITERATURE REVIEW

### 2.1 Types of Tax

Taxes can be classified according to the administrative collection arrangements, their bases, rates and effects (Simiyu, 2001). Tax collection arrangements may involve either direct payments by the tax payers to the revenue authorities or indirect payments where the payer cannot be identified in advance. This arrangement gives rise to two important tax terms namely: direct taxes and indirect taxes.

The base of a tax is the legal description of the object for taxation. For example, the base of an excise duty is the production or packing or processing of a specific good; the base of an income tax is the income of the assessee defined and estimated in terms of certain rules laid down for this purpose; a gift may be defined and made a base for levying a gift tax.

Taxes can also be progressive, proportional or regressive depending on the rates used with respect to a given base. A common classification adopted in taxation is that on the basis of degree of progression of a tax. A tax is called progressive when, with increased income, the tax liability not only increases in absolute terms but also faster as a proportion of the income. If on the other hand, the tax liability increases in the same proportion as the increase in income, then it is proportional taxation. It would be called a regressive tax if the tax liability, as a proportion of income, falls with increase in income. This study focuses on the administrative collection arrangements, where tax is classified as direct or indirect. Direct taxes referred into this study include company taxes on profits

and individual taxes on income where as indirect taxes include Value Added Tax (V.A.T), Excise duty and Import duty

## 2.2 Tax Reforms

Around the world, tax reform is near the top of the political and academic agenda. Particularly important is the debate on whether income or expenditure should be direct tax base, although this question appears to have had little impact on politicians. Tax reform may be characterized as "Set the lowest possible rate with the fewest possible reliefs": that is, for efficiency, governments should aim at a low tax rate on a wide tax base.<sup>1</sup>

The tax reforms introduced in Pakistan a few years ago have given impressive boost to the tax revenue collection and also changed the tax culture in the country (Lahore, 2005). The World Bank senior members' delegation, led by Eric Pascal, expressed these views while talking to newsmen and senior tax officials at Lahore.

As a country, Kenya has established certain fundamental priorities: protecting the safety, security, and health of her citizens; ensuring the right to a world class education; providing vital public services; and preserving the dignity of her elderly and all those who take responsibility for their lives. The challenge of a tax policy is to generate resources to support these priorities in a way that is consistent with three basic principles: fairness, simplicity, and opportunity (Nyamuga, 2001)

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<sup>1</sup> Margaret Wilkinson, (1992), TAXATION., The Macmillan Press Ltd, P 192



Unfortunately, Kenya's tax code has diverged far from these principles in recent years. The tax share has shifted away from those who can best afford to pay and onto the middle class. Corporations have largely been able to avoid their obligation to pay taxes, in part by shifting operations overseas. The result is an increased reliance on a regressive payroll tax, which falls most heavily on lower- and middle-income taxpayers (Nyumuga, 2001)

Restoring a fair, simple, and pro-opportunity tax system, while generating the resources necessary to meet the looming challenges, requires moving the tax system in an ambitious new direction. Geared in this direction, Kenya would need a comprehensive tax reform plan that rewards hard work and promotes shared prosperity. In addition to the measures already put in place, KRA must embark on promotional activities to sensitize the society on tax issues and most important, it must be accorded political autonomy to make it effective.

Although tax reforms in the various countries have typically dwelt with the large number of issues, there is a universal semblance of fiscal problems running through the entire experiences. These problems include;

**Searching for alternative indirect taxes:** One of the major shortcomings of the sales taxes is their haphazard treatment of investment and tradable goods. Incidence taxes associated with turnover taxes are very random, thus the increased realization that VAT can be a better form of tax. Adoption of VAT in most developing countries has been seen as a reliable method of promoting both exports and investments while achieving a more

predictable and often more equitable distribution of tax burdens. VAT has been seen as a solution to many fiscal drawbacks such as need for higher revenues. The large revenue potential of VAT has made it a reliable source of funds and has shifted mix of taxation away from income and more towards consumer expenditure. However, it must be well designed to work. Its preparations are inadequate and its enforcement is weak or if the VAT has various rates and riddled with exemptions, it may operate with defects and indeed be even worse than the indirect tax it replaced (*Shoup 1988, Musgrave 1980*).

**Problems with broadening the income base:** Income has been the hardest to tax due to difficulty involved in tracing the capital gains, existence of a wide range of fringe benefits and political preferences accorded to certain sectors. In addition, the presence of a large number of workers in small businesses and agriculture has aggravated the problem. Attempts of introducing lower rates on such activities have resulted into people trying to shelter their activities in these lightly taxed activities. Presumptive taxes have also been utilized in attempt to include such groups in the income tax base. The measures should expand the size of the tax base to raise total revenue, improve vertical and horizontal equity and produce gains in neutrality.

**Non-revenue objective:** Undermining the revenue potential of taxes on capital income has been the propensity of many developing countries to offer generous saving and investment incentives. In 1960's and 70's, a complex and detailed system of incentives was part of the overall planning process. Recently, however there has been doubt in the ability of tax incentives to perform a useful role in promoting economic development

hence incentives have been substantially reduced. In many developing countries, however, there is a growing appreciation of the ability of tax incentive firms to shelter the income of non-incentive firms from taxation through transfer pricing and other income shifting devices (Chand 1973).

**Vertical equity in taxation:** Many countries have been concerned about reducing their reliance on direct taxation in view of limited revenue capacity of income taxes. Many countries have been redesigning their structure of indirect taxes to either reduce the burden of these taxes on low income groups hence the exemption of basic necessities from VAT or other forms of sales tax plus imposition of higher tax on luxury goods. The effects of these on horizontal equity have been neglected. Some indirect taxes may be progressive, such as, raising import taxes in the presence of quantitative restrictions may be an effective way of raising taxes from wealth holders of import licenses. No significant achievement has been made in reducing burdens of the poor.

**Simplifying the tax system:** Among the weaknesses in the administration include the inability to collect accurate and timely information on taxpayer circumstances to determine defaulters, accuracy of declaration and detection of fraud and collection of already assessed taxes. If direct and indirect tax laws are significantly simplified, administration resources could be concentrated on audit and collection function with likely gains on both revenue and equity. Stiffer sanctions for nonpayment, more frequent audits, and shorter lags in collection process, computerization and streamlining legislation may be prequisites to achieving effective tax reforms. To obtain better

compliance, many countries have made their efforts to create a unique taxpayer identification number (PIN). With computerization, this will ensure maintaining better check. Widespread tax evasion is another result of weak administration. This operates through different channels which include failure to file returns, the misrepresentation of income and expenses, use of fraudulent financial statements and resort to transfer prices involving exempted or preferentially taxed activities, issuing no invoices to underreport sales or resorting to fake invoices in order to claim higher tax credits have been common problems with VAT. With such rampant evasion, tax systems are neither efficient nor equitable.

### **2.3 Tax Reforms and Tax productivity**

In previous studies, most of the developing countries' tax systems have been found to be income inelastic with an elasticity of less than unity and buoyancy coefficient of slightly above one (Ole, 1973 and Kusi, 1998).

Studies on tax reforms seem to suggest similar lessons of successful reforms. The literature put forward is more of descriptive than analytical. Revenue adequacy, neutrality and equity are seen as the most important objectives that a tax system ought to serve. Gillis (1985) after undertaking a study in Indonesia argued that in presence of fiscal crisis, the reforms were undertaken to forestall oil revenue shortfalls and elicit more effective income distribution, simplification of the tax system and streamlining of the tax administration.

Khalilzadeh and Shah (1990) point out that changes in tax system be made after transitional arrangements have been adequately put in place. It should be gradual and considered a long-term strategy. Thirsk (1990) advocates for a well thought out program of action and clear perception of the problems of the pre-reform tax system.

World Bank (1990) on its part argues that the tax structure must be stable and flexible. Stability of tax structure allows revenue to be predicted with certainty. Revenue instability can complicate fiscal management especially if expenditures are inflexible downwards and the options open to policy makers are limited.

Ole (1972) studied Kenya's income elasticity of tax structure (1962-73) and found that the tax structure was not very buoyant. Kenya depended heavily on foreign funds to clear its fiscal imbalances. At this time the tax structure was income inelastic (0.81) implying that the structure could not be relied upon to finance rapidly growing government expenditures. Widespread use of specific rather than general rates on commodities led to inelasticity of indirect taxes (0.63) hence inelasticity of the tax system. Direct taxes were only elastic at 1.09.

Kiptui (1989) observes that the directional effects of inflation in most developing countries was brought about by the fall in real values of revenues due to collection lags. Most governments are compelled to print money due to fall in revenue to be able to finance deficit, thus the inflation. He also found that on average time lags if adjusted between the desired and the actual revenues are larger than those between the desired and the actual government expenditure lags. This thus leads to increase in money supply.

Mwarania (1988) evaluated the problems of increase expenditures as compared to revenues, and analyzed that collection and administration was inefficient. Revenue base of taxpayers was narrow because of low incomes of majority of Kenyans.

## **2.4 Tax Reforms In Kenya**

Though the Kenya tax structure has changed tremendously over the years, massive reforms commenced in 1986 following the publication of Sessional paper 1 of 1986. Since then, implementation of major tax reforms introduced major changes in the tax system.

### **2.4.1 Income Tax Reform**

Income tax is a direct tax on business income, employment income, rent income, pensions and investment income among others. Reforms in Kenya have mainly been aimed at broadening the tax base while reducing the maximum rates. Top rate level was reduced from 65% to 32.5% in 1998 for individuals and 45% to 30% for companies. The rate was rationalized by unifying the structure across all types of business. Shift from the classical system to the current system reduced incidence of double taxation. The collection and administration cost were also greatly reduced with the introduction of the self-assessment tax systems and the personal identification number (PIN). PIN was aimed at improving tax information management by identifying all taxable persons in the country. This also enhanced reduction of tax evasion. The Income Tax Act also provides personal relief to taxpayers. Since 1990, tax brackets and tax relief have been reviewed with the objective of cushioning low income earners against bracket creep while ensuring

large income earners bear a larger tax burden. Currently, personal relief is Ksh. 12,672 deductible from the gross tax of individual taxpayer.

#### 2.4.2 VAT and Excise Duty Reform

VAT was introduced in Kenya in 1990 to replace sales tax because VAT has a higher revenue potential and collection and administration were more economic, efficient and expedient. Measures were put in place to broaden the base of VAT at either retail levels or wholesale levels in all sectors. VAT rationalization also included reducing the maximum rate from 105% to 15% (currently 16%) and the reduction of the rate bands from 15 to 3. Tax refund system in VAT elicited much interest from tax payers. As at September, 2006 Excise duty stood at 10%.

The VAT has changed over the study period as follows:

| Fiscal Year           | Rate Applicable |
|-----------------------|-----------------|
| Jul 1999 to June 2000 | 15%             |
| Jul 2000 to June 2003 | 18%             |
| Jul 2003 to June 2005 | 16%             |

#### 2.4.3 Custom Reform

Kenya custom taxes underwent significant changes during the reform period in the direction of restricting duty exemptions, encouraging exports, reforming the tariff structure and strengthening the administration of custom duties. The reforms were aimed at encouraging a free market atmosphere and therefore increasing the level of foreign

direct investment. The top tariff rate was reduced from 170% to 25%, while rate bands were reduced from 24 to 5. Export compensation was abolished (1993) as well as export taxes so as to give impetus to export growth.

#### **2.4.4 Organizational Reform**

One of the major objectives of the Tax Modernization Programme (1986) was to implement organizational reform that would modernize tax collection. Before the reforms, there were five separate departments; custom duty, excise duty, sales tax, income tax and corporation tax departments, in the Ministry of Finance. Kenya Revenue Authority (KRA) was incorporated on 1<sup>st</sup> June 1995 to strengthen revenue collection and harmonize different tax collection arms, enhancing mobilization of the government revenue while providing effective tax administration and sustainability in revenue collection. The functions of the Authority were identified as assessing, collecting and accounting for all revenues in accordance with the written law, advising on matters relating to the administration of and collection of revenue under the written law, and performing other such functions as the minister may direct. (The KRA Act Chapter 461). It was aimed at achieving the following: placing an effective and efficient system to seal all loopholes of tax evasion and enlisting as many eligible taxpayers as possible. To achieve this, it was allocated more budgetary support to enhance pay structures of the revenue officers and attract and retain professional staff. Structures to identify and dismiss corrupt officers were put in place. This was necessary since efficient revenue collection was seen as a means to lower government borrowing thus easing pressure on inflation and interest rates.



Waweru Commissioner General of KRA during the Kenya Institute of Management Annual Dinner on 16<sup>th</sup> June 2006 stated that, the Kenya Revenue Authority is committed to ensuring that Kenya achieves its economic goals by relying on its own resources. Since its formation in 1995, the Authority has played an increasingly big role in mobilizing internal resources for the economic development of Kenya. Over the last ten years of its existence, KRA has increased revenue collection from **Kshs. 122 billion** in the Financial Year 1995/1996 up to **Kshs. 274 billion** in Financial Year 2004/2005. Tax revenues collected by KRA continue to be an important source of finance for the Government, and as at 2004/2005 financial year accounted for about **95%** of the total Government revenue.”

In his speech during the Kenya Business Council fourth Annual General Luncheon, he stated, “...Today we operate in a highly efficient world where goods, information and money criss-cross our boundaries at great speed. Given this state of affairs, what then is expected of a revenue authority? The answer lies in having a revenue authority that is proactive, responsible and responsive to changes in the operating environment. Realizing that our former systems at Kenya Revenue Authority were not able to cope with the ever-changing trading environment, we began an organization-wide **Revenue Administration Reform and Modernization Programme**. There was the Customs Reform and

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<sup>7</sup> *Speech By Mr. M. G. Waweru, Commissioner General Of Kenya Revenue Authority During The Kenya Institute Of Management Annual Dinner Nairobi - Friday 16th June 2006*

Modernisation Project, the Domestic Taxes Department Reform and Modernisation Programme and the Road Transport Reform and Modernization Project.”<sup>3</sup>

The Revenue Administration Reform and Modernization Programme was still ongoing by July 2005 and comprised the following the measures among others;

The **Domestic Taxes Department (DTD)** was established by merging the Value Added Tax and Income Tax Departments, as well as incorporating Domestic Excise from the former Customs & Excise Department. The aim of putting all these taxes together was to improve on the collection efficiency and enable business operate smoothly by having well coordinated tax audits. The issue of multiple visits by Officers from various KRA Departments greatly interfered with business operations (Waweru, 2006).

Subsequently, KRA’s focus shifted towards aligning service delivery to market segments. This was achieved by establishing the **Large Taxpayers Office (LTO)** into a fully fledged Department headed by a Commissioner. There are about 700 taxpayers who fall within this category and who jointly contribute about 75% of the revenue collected from the Domestic Taxes Department. Indeed, the large taxpayer corporations are agents for Kenya Revenue Authority with respect to collection and remittance of PAYE and VAT. The LTO clients are expected to therefore be accorded preferential treatment in accordance with their status (Waweru, 2006).

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<sup>3</sup> *Speech By Mr. M. G. Waweru, Commissioner General Of Kenya Revenue Authority During The Kenya Business Council Fourth Annual General Luncheon Nairobi - Wednesday, 19<sup>th</sup> July 2006*

Introduction of **direct banking** for payment of taxes has enhanced accountability and reduced the likelihood of revenue losses due to cheque fraud (Waweru, 2006).

The deployment of the **Simba 2005 System** in the Customs Services Department, which was done from July 1, 2005 is another measure. The system has transformed the Customs Services Department by greatly reducing personal contact between the Authority and the importers and exporters, as well as reducing the amount of paperwork involved in the clearing process. Initially some members of the private sector resisted the System, though they have since accepted it and are finding it to be a useful system (Waweru, 2006).

Implementation of a computerized system for the management of Motor Vehicle records and payments. The result of the computerization programme was a very significant increase in the revenue collection by the Department during the 2004/2005 and 2005/2006 Financial Years. The computerization initiatives at KRA are intended to reduce personal contact between the taxpayers and KRA. The authority intends to implement electronic filing of tax returns, so that businesses can operate with greater efficiency (Waweru, 2006).

## **2.5 Tax Administration**

Tax administration does not operate in a vacuum. Its relationship at every turn is with the public and since the combination of taxes reaches nearly every individual in one way or another, the administration finds itself dealing with the nation as a whole. Hence inevitably its operations and effectiveness are affected by the attitudes of the nation

towards the system. The relationship between the citizens and the government affects the efficiency of the administration. Voluntary tax compliance varies from one country to another. Similarly, the national attitude towards a tax system differs (Kusi, 1998).

An understanding of the nature, extent and cause of these differences would be extremely helpful to the improvement of the existing situation. In many countries the task of tax administration adversely affected, and seriously so, by the prevailing tolerance of the public toward non-compliance and avoidance.

Surrey (1958) observed that in developing countries emphases is often made on tax reforms to improve on tax revenue collection. The concentration on tax policy reforms that is on choice of tax rates and expansion of the tax base may lead to insufficient consideration of the aspects of tax administration. Surrey's observations can be summarized in the following excerpt:

*.....It is increasingly apparent, however that tax administration must receive far greater attention if the goals of tax policy are to be attained. Much of tax policy is being directed to obtaining increased revenues to enable governments to carry out their economic planning. The search is for additional taxes, for new sources of revenue. Yet it is true in many countries that the successful administration of some of the existing taxes would provide a considerable part of the needed additional revenue.....*

*..... While many underdeveloped countries faced with dissatisfaction with their revenue systems are interested in making fundamental reforms, doing so may in some*

*instances be putting the cart before the horse. Efforts to change the law may invoke sharp political and social struggles, whose effect might long delay any worthwhile changes.....*

*.....The sensible course in many countries may therefore be first to strengthen the existing administrative machinery and then when this had been accomplished to face the basic issues of tax reform.<sup>4</sup>*

Similar sentiments were expressed by Kusi (1998) when with respect to the tax administration in Ghana who stated, "...despite the many changes that the tax reform have brought about, some problems of institutional infrastructure of administration still exist". To strengthen the performance of a tax system, Surrey (1958) singled out these basic aspects that usually occur under nearly all taxes to be: locating the tax payer through registration both in formal and informal sector, ensuring tax payers' compliance, audit and examination, computerization of the tax authority records, application of tax penalties, resolution of controversies between taxpayer and tax officers, collection of taxes, policy on employment of the revenue authority, creation of awareness, publicize tax defaulters and use of efficient and honest tax administration. Kusi (1998) summarizes that, "Generally, the tax administration need to improve their own managerial capacities through actions in the areas of collection management, audits and internal control and personnel policy."

Kusi (1998) argues that a common feature of the tax structure of most developing countries is that they are complex (difficult to administer and comply), inelastic (non response to growth and discretionary policy measures), inefficient (raise little revenue but

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<sup>4</sup> Surrey (1958), Lent et al (1973) and Taylor (1970)

introduce serious economic distortions), inequitable (treat individuals and business in similar circumstances differently), and unfair (tax administration and enforcement are selective and skewed in favor of those with the resources to defeat the system).

The success of a tax system will largely depend on the co-operation with the tax payer. The co-operation is hampered by the administrative aspects such as uncertainty and inconvenience as well as the tax payers' attitude towards the tax system. *Nzioki (1994)* observed that tax literature only serves the purposes of lawyers, accountants and students without consideration of tax payers. Nzioki further argues that the tax laws are such that the commissioner has no legal obligation to inform the tax payer what he is required to do regarding his tax affairs. He further notes that once in a while and out of courtesy, the commissioner conveys scanty information through the public media and the press such as the date when the final returns or the installments payments are due.

There are very many theories explaining causes of non compliance. *Strander and Fogliassio, (1989)* identified three of the main factors causing non-compliance as tax rates, complexity and system controls. The tax rates argument is that the higher the rate, the more the incentive to under-report income. Simulations have been made to support the theory, finding that higher tax rates tend to stimulate tax evasion.<sup>5</sup>

Control system argument is that the less the control the higher the rate of tax evasion. There are two types of controls: preventive and punitive controls. Preventive controls include withholding tax and use of third party information returns, while punitive are

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<sup>5</sup> Clot faller (1983) as quoted in Strander and Fogliassio (1989)

controls such as tax return audit, civil and criminal sanction. Tax complexity explains the accidental non-compliance. It results from honest mistakes tax payers make due to the complexity of the tax system such as tax laws, difficulty in keeping accurate books of accounts, inability to obtain information needed to comply and tax payer negligence, that is, lack of due care.<sup>6</sup>

In an article in the Sunday Nation/June 18, 2006 titled, '*Uncover tax cheats and fatten your wallet*', "..... the taxman may be encouraging Kenyans to spy on each other and blow the whistle on tax evaders. While KRA reward scheme has always existed, it is the first time it is being openly flaunted. According to an advertisement put on Friday, information leading to the identification and recovery of undisclosed taxes will attract a reward of one percent of the amount identified up to Sh100, 000 and three percent of the amount recovered above that limit. With the Government getting used to a life without budgetary support from donors, the KRA is under renewed pressure to increase its collections. Its target for 2006/2007 financial year is Sh375.4 billion"<sup>7</sup>

In the budget for 2006/07 financial year, the emphasis is more on compliance measures than on reforms. The budget emphasizes on compliance with the Electronic Tax Register (ETR), introduces major measures on VAT refund claims and applies zero-rating to a number of basic goods. The issue of delayed payment of VAT refunds has been a major problem for business in Kenya. The good news for businesses is that the Minister committed to an increase in the allocation of funds for settlement of VAT refunds

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<sup>6</sup> American Bar Association 1987, as quoted in Strander and Iulgiassio (1989)

<sup>7</sup> Sunday Nation/June 18,2006, Business Sunday pp 17

following numerous submissions by affected tax payers. This is a step though does not fully resolve the problem of backlogs, given that the current VAT refund claims exceed the existing allocation. Thus the changes introduced in the budget for 2006/07 financial year are a step in the right direction. More goods have been zero-rated and commitments have been made on increased allocation of funds for settlement of VAT refunds. More VAT reforms such as zero-rating of international travel and the introduction of interest on outstanding VAT refunds to reduce the cost of financing were expected. However, in line with the government's theme to build a framework for the future, the above changes reflect a positive move towards improving VAT compliance and administration.<sup>8</sup>

## **2.6 Tax Productivity and Measurement**

Importance of fiscal policy in many developing countries arises from the fact that the state is called upon to play an active role in promoting economic development. Fiscal policy is all policy by the government involving the collection and spending of revenue that is "tax and spend" policy. In particular, fiscal policy refers to efforts by the government to stimulate the economy directly, through spending. All governments and especially in developing countries have a responsibility of producing a range of goods and services. They need to raise the revenue and regulate the economy for a variety of reasons and they invariably have to make compromises between ideal set of economic rules for market economy and their own objectives. Tax systems thus come into play by providing a major revenue source for financing expenditure.

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<sup>8</sup> Kenya Budget review 2006, by Price WaterHouse Coopers.



Tax policies can be manipulated to meet specific economic objectives thus the greater the need for tax reforms from time to time (*Bhatia 1971*). *Khan (1993)* argues that taxation policy is the most important element for mobilizing the increments in national income for investments or expenditures of the state. Using tax ratios gives some indications of the relative levels of taxation in various countries. However, variability in tax performances and inferences gives some countries a favorable position to levy taxes (*Chulliah 1983*). Of the variables used to explain taxable capacity of a country are the levels of income, degree of openness of the economy and composition of GDP.

A flexible tax system is one of the most efficient methods of achieving economic stabilization. For example, during a boom period discretionary measures are taken to guarantee a higher rise in tax revenue relative growth in national income thus reducing dangers of inflation. In recession, tax rates and tax bases are adjusted so that revenue from taxation falls faster than fall in income. This mitigates deflationary situations by maintaining aggregate demand, prices and profits above what would otherwise be (*Ole, 1975*).

Revenue productivity of a tax system is measured through its buoyancy and elasticity. Buoyancy is the sensitivity of tax yields to changes in national income. This sensitivity is measured in terms of elasticity or responsiveness of tax revenue to changes in Gross Domestic Product, that is, income elasticity of tax yields is referred to as buoyancy. A

buoyancy coefficient of more than one will indicate that revenue rises faster than income thus reducing chances of revenues lagging behind expenditure.

Actual tax collection depends on two main factors; the actual or realizable economic surplus that determines what is available for taxation and the mechanisms or tax handles of the government, which is associated with the ability of the government to extract surplus (*Mtshfikolo 1990*). At early stages of economic development, the surplus (production net of consumption) is small, as the economy expands, there is a built in response of the tax system to the expansion in income and thus the revenue increases. Government however, has tools it can use to determine magnitude of changes in tax revenues. These are the tax handles or discretionary tax measures (DTMs) and they include; changes in rates, introduction of new taxes and improving of tax machinery. Since there are severe administration and political limitations to the extent to which additional tax measures such as expanding the base, increasing the rates or imposing new rates or imposing new taxes can be resorted, the built in elasticity of the system is important. Thus a tax system in a developing country, response of the tax revenue to changes in national income is a vital ingredient (*Kusi. 1998. Prest 1962*).

Overall response of tax system both built in and that due to discretionary tax measures is known as buoyancy. On the other hand, elasticity of tax system measures only the inbuilt response hence the abstraction from effects of the discretionary tax measures. Thus in measure of elasticity, one has to abstract from effects of changes in tax legislation over time.

To measure buoyancy of an individual tax, the constant elasticity tax function used is:

$$T_i = \alpha Y^B$$

Where;

$T_i$  = tax revenue from the  $i$ th source

$Y$  = GDP at factor cost

$B$  = Buoyancy coefficient

$\alpha$  = a constant

The equation is expressed as a double logarithmic function of the form:

$$\text{Log } T = \log \alpha + \beta \log Y + E$$

Where  $E$  = log normal, distributed error term.

Although elasticity of tax revenue to income is often presented in aggregate models as a single number, it is more realistically visualised as the weighted average of the sum of the elasticities of separate taxes that often have widely divergent responses to changes in income (*Masfield, 1972*). Thus the overall tax elasticity must be examined by studying the separate elasticities of the individual taxes. In turn, the income elasticity of each separate tax may be decomposed into two elements: the elasticity of the tax to the base and the elasticity of the base-to-income.

Symbolically, Mansfield (1972) has defined these elasticities as follows:

Elasticity of total tax revenue to income:

$$E_{TY} = \frac{\Delta T_T}{\Delta Y} \cdot \frac{Y}{T_T}$$

Elasticity of Kth individual tax income:

$$E_{T_k Y} = \frac{\Delta T_k}{\Delta Y} \cdot \frac{Y}{T_k}$$

Elasticity of kth individual tax-to-base

$$E_{T_k B_k} = \frac{\Delta T_k}{\Delta B_k} \cdot \frac{B_k}{T_k}$$

Elasticity of kth individual base-to-income

$$E_{B_k Y} = \frac{\Delta B_k}{\Delta Y} \cdot \frac{Y}{B_k}$$

Where:

$T_T$  = total tax revenue

$T_k$  = revenue from kth tax

$Y$  = income ((GDP))

$B_k$  = base of kth tax

$\Delta$  = the discrete change in the variable associated with it.

Given these definitions of elasticity, it follows that in a system of n taxes:

$$E_{TY} = \frac{T_1}{T_T} \left( \frac{\Delta T_1}{\Delta Y} \cdot \frac{Y}{T_1} \right) + \dots + \frac{T_k}{T_T} \left( \frac{\Delta T_k}{\Delta Y} \cdot \frac{Y}{T_k} \right) + \dots + \frac{T_n}{T_T} \left( \frac{\Delta T_n}{\Delta Y} \cdot \frac{Y}{T_n} \right) \dots \dots (1)$$

According to Equation 1, the elasticity of total tax revenue to income is equal to the weighted sum of individual tax elasticities (where the weights are the fractional distributions to total tax by each individual tax). The elasticity of any individual tax may

also be decomposed into the product of the elasticity of the tax to its base and the elasticity of the base-to-income:

$$E_{TY} = \frac{(\Delta T_k \cdot B_k)}{\Delta B_k \cdot T_k} \cdot \frac{(\Delta B_k \cdot Y)}{\Delta Y \cdot B_k} \dots\dots\dots (2)$$

Combining Equations 1 and 2 gives

$$E_{TY} = T_1 \left( \frac{\Delta T_1 \cdot B_1}{\Delta B_1 \cdot T_1} \right) \left( \frac{\Delta B_1 \cdot Y}{\Delta Y \cdot B_1} \right) + \dots + T_k \left( \frac{\Delta T_k \cdot B_k}{\Delta B_k \cdot T_k} \right) \left( \frac{\Delta B_k \cdot Y}{\Delta Y \cdot B_k} \right) + \dots + T_n \left( \frac{\Delta T_n \cdot B_n}{\Delta B_n \cdot T_n} \right) \left( \frac{\Delta B_n \cdot Y}{\Delta Y \cdot B_n} \right) \dots (3)$$

..... shows that the elasticity of the total revenue to income in a system of n taxes depends on the product of the elasticity of tax-to-base and base-to-income for each individual tax in the overall system. Analysis of the income elasticity of a tax system in the manner given by Equation 3 permits identification of the sources of fast revenue growth, or conversely, the cause of lagging revenue growth. It also permits identification of that part of revenue growth within the control of the government. On the other hand, the tax base constituent of elasticity may be raised by an improvement in administration. In this sense, the tax-to-base constituent of elasticity is partly within the control of the government. On the other hand, the growth of tax base lies outside the control of the government (apart from the influence of tax policy itself) and is largely determined by the way in which the structure of the economy changes with economic growth.

## 2.7 Methods of Adjusting for Discretionary Effects

Scholars and researchers have derived various techniques that have been extensively used to adjust for discretionary effect in the attempt to measure tax yield. These techniques include: the Divisia Index Method (DIM), Constant Rate Structure Method, the Dummy Variable Technique (DVT) and the Proportional Adjustment Method (PAM).

### 2.7.1 Divisia Index Method (DIM)

This technique was extensively developed and used by Choudry (1979) in measuring technical change. It was discovered through an intuitive appreciation that the characteristics of the effects of discretionary tax measures (DTMs) on the tax yield over and above those caused by the automatic growth in the tax bases as technical changes induce changes in productivity over and above those that can be accounted for by increase in factor inputs. At an aggregate level, it is assumed to induce a shift in the production function because a given technology is altered so to a discretionary tax measure does the same on aggregate tax function since it alters the tax system.

Solow (1957) revealed that under certain circumstances the DIM is appropriate index of factor inputs where weights are the factor share in the total growth. After estimating buoyancy, the buoyant coefficient is adjusted by a suitable transformation of the index obtained initially in order to arrive at the elasticity.

Though based on strong bases of development, Choudry confirms that in practice, the DIM can undermine (overstate) the positive (negative) revenue effects of such measures. If the DTMs produce very large effects, the method does not give satisfactory results. Despite the limitations the index is expected to provide reasonable measure of the effects of such measures. Its main advantage is that it requires no specific information on the revenue effect or on the frequency of the past discretionary tax changes.

### 2.7.2 The Dummy Variable Approach

This method uses a dummy variable as a proxy for discretionary tax measures. It involves the introduction of a dummy variable for each exogenous tax policy change. It was used by Khan (1973) and Artus (1974) as quoted in Kusi (1998). Revenue data is then fitted in the following model:

$$T = \alpha + \beta Y + \sum_{i=1}^n d_i D_i$$

Interpreted using log linear form as:

$$\log T = \alpha + \beta \log Y + d_1 D_1 + \dots + d_n D_n$$

Where  $D = n$  numbers of dummy variables. The dummy variable  $D$  takes the value of 0 before the discretionary and 1 after the change.

$\beta =$  elasticity coefficient.

The method is very simple to use since it does not require the adjustment of tax revenue. However, its not very effective when discretionary changes have been so frequent in the past. Moreover, it creates a potential multicollinearity problem from the inclusion of more than one dummy variable into the tax function.

Ehdhaie (1990) argues that in spite of the model being simplistic, its application to estimate elasticity becomes limited when the number of DTMs is large relative to the data length. Khan (1973) also reports that the buoyancy results are lower than elasticity estimates (except for income tax and custom duty) implying that the reforms had only dampened the responsiveness of the tax system.

### 2.7.3 The Constant Rate Structure Method:

This method was used by Choudry (1975) and Andersen (1973), as quoted in Kusi (1998). In this method, figures on actual tax receipts and data on the monetary value of the legal tax bases and their corresponding bases are collected. The tax bracket rates of the reference year are then multiplied by the corresponding base values and the products of each year are summed up. Where there is no information on the legal tax brackets, effective tax rates of the reference year are used. This generates a series of revenue data based on the structure of the reference year which can be done using the formula:

$$T_p(t) = \sum_{i=1}^n T_{ip}(t) \dots\dots\dots(i)$$

$$Y(t) = \sum_{i=1}^k Y_i(t) \dots\dots\dots(ii)$$

Where:

$T_{ip}(t)$  = Assessed personal income tax

$Y_i(t)$  = assessed income of the  $i$ th group

$T_p(t)$  = aggregate assessed personal income tax in the period  $t$

$Y(t)$  = aggregate assessed income in the same year

$r$  = reference year.

The average effective rate of taxation for the  $i$ th group in the reference year is:

$$t_i(r) = \frac{T_{ip}(r)}{Y_i(r)} \dots\dots\dots(iii)$$

$$T_p(r) = \sum_{i=1}^k t_i(r) Y_i(r) \dots\dots\dots(iv)$$



Thus the simulated assessed personal income tax in the  $t^{\text{th}}$  year is,

$$T_p(t) = \sum_{i=1}^k t(r) Y_i(t) \quad i=1, \dots, n, \dots, (v)$$

From the equation, the method portrays some limitations. It only incorporates the discretionary tax changes in the statutory tax rate, thus it ignores changes arising from administrative efficiency. In addition, the information on distribution of tax bases by rate categories is not readily available thus the adjusted data involve measurement errors, which in turn create specification bias in the elasticity estimation. It assumes that the interclass or inter-groupings of the base will remain unchanged during the period under review. In real sense, the validity of the assumption will decline as the number of income groups or commodity groupings fall due to aggregation (Ehdhaie 1990). This method becomes inefficient where, first, a tax has many progressive elements and secondly, the tax bases grow at the same rate (Chouldry 1979).

#### 2.7.4 Proportional Adjustment Method (PAM)

This was originally developed by Prest (1962) and has since then been used by Mansfield (1972), Osoro (1993) as quoted in Kusi (1998). The method starts with the estimation and separation of discretionary effects from the tax revenue. Historical time series data are first adjusted to the preceding year base by subtracting the budget estimate of the impact of discretionary measures implemented in the year from the actual tax revenue collected that year. PAM is preferred in cases where full and reliable information of the discretionary tax revenue effects exist. The weakness with this method is its over reliance on budget estimates of the discretionary effects of the tax yield which tend to

differ substantially from the actual taxes collected and more so in developing countries. This is the method adopted in this study.

Mtatifikolo (1990) uses the method to report results close to those of Rutayisire (1982) and Osoro (1985) who conducted a similar analysis in Tanzania. Osoro (1985) utilized the PAM and the DVT together. Mtatifikolo reports generally low elasticities of major taxes but high buoyancies. There were differentiated efforts directed at taxable targets with the biggest efforts directed at taxation of imported items. Income taxes whose buoyancy coefficient is smaller than elasticity estimate suggested evasion and/or tax avoidance. When he further decomposes elasticity to tax base and base income, he shows that in overall the low tax elasticities are explained by low base-to-income elasticities. This is because the rate of taxable monetization of the economy had not been keeping pace with the overall GDP growth and informal and subsistence production and transaction had proliferated over the years so that the tax bases had not grown accordingly.

Bryne (1983), uses the same method to estimate the inbuilt responsiveness of major taxes in Zambia, particularly how it affected the contribution of those taxes in offsetting the decline in revenue from mining sector over the sample period (1966-77). Kwasa (1980) examines the same tax system for the period 1964-71 and notes that all taxes taken together show an increase of 11.2% as compared to an increase of 12.8% in primary GDP. Bryne (1983) reported elastic income taxes and domestic taxes but inelastic import duties. This was explained by growth of industrial and services sector and in consumption

and government policy on import substitution. Import duties were hard to collect due to administration inefficiencies. High buoyancy of domestic goods and services was related to faster than proportional growth of indirect taxes with respect to private consumption thus indicating a high-income elasticity of demand for some excisable products like bottled beer.

The methods discussed above are widely used in various countries. Ehdhaie (1990) has however contended that all the methods of estimating elasticity suffer from specification bias because they assume changes in an indirect tax do not affect its own and other tax bases. He develops a model that incorporates the effects of DTMs on other bases to come up with a dynamic model. The model is however a non-linear simultaneous system that requires non-linear estimation techniques that are out of scope in this study.

#### **2.7.5 Optimal Tax Theory:**

Apart from estimating tax productivity using elasticity and buoyancy, another method of assessing the tax system is the Optimal Tax Theory. The method analyzes the impact of tax reforms on the objective of minimizing the efficiency cost of taxation through changes in social welfare function. Ramsey (1927) argued that the efficiency cost per unit of taxation could be minimized under a system that equalizes the welfare cost per unit of tax revenue for all commodities. Newberry and Stern (1987) have attempted to utilize this analysis in evaluating tax reforms.

Though having strong underpinnings, this theory's operational content is limited. Thirsk (1990) argues that information required is sufficiently daunting to the point of being overwhelming. Apart from demanding knowledge of elasticity of all consumer goods, the theory is built upon a social welfare function of which very little is known and whose existence has been doubted in Public Finance. Slamrod (1990) argues that the theory could act as a guide if it takes into account the tax administration aspect, which it entirely ignores by assuming perfect administration. Thirsk (1990) argues that once the tax is recognized, the appeal for the highly differentiated tax structure that the theory advocates for is highly diminished. Deaton (1987) Diamond and Mirlees (1971) have used the model and argues that it fails to identify the real practical need for reforms in developing countries, thus it is of little impact to these developing countries.

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Research Design**

The type of research design adopted in this study is a country tax system case study. This is because it involved collection of quantifiable data in order to determine the current status with respect to the effects of tax reforms on the tax revenue. It also involved advanced statistical and descriptive analysis.

### **3.2 Population**

The research took the form of a case study whereby data was collected from a few study units. The study units opted for were the Kenya Revenue Authority (KRA); the department of trade in the Ministry of Planning and Economic Development, the Central Bureau of Statistics, and the Ministry of Finance.

The data on GDP, inflation, imports, private consumption, domestic factor incomes and tax revenues was obtained from Economic Surveys and Statistical Abstracts both published by Ministry of Planning and Development and the Ministry of Finance. Government Financial Statistics published by International Monetary Fund (IMF) was also used. Revenue impact on discretionary tax measures (DTMs) was obtained from annual budget speeches. These were judgmentally chosen given that the secondary data needed on the tax revenues and tax rate variations could be readily available in these sources.

### 3.3 Data Collection

The study made use of secondary data. Secondary data was derived from Economic Surveys and Statistical Abstracts both published by Ministry of Planning and Development and the Ministry of Finance. Data on the revenues generated from the various tax groups for the period 1973 to 2003 were used. The period before reforms was identified to be 1973 – 1985 while period after reforms was 1986 – 2003.

The data collection sheet used is as shown below:

#### Kenya Actual and Adjusted Tax Revenues (1973-2003)

| Year | Direct Tax | Adjusted Direct Tax | Import Duty | Adjusted Import Duty | Excise Duty | Adjusted Excise Duty | Sale Tax/VAT | Adjusted Sales Tax/VAT |
|------|------------|---------------------|-------------|----------------------|-------------|----------------------|--------------|------------------------|
| 1973 |            |                     |             |                      |             |                      |              |                        |
| 1974 |            |                     |             |                      |             |                      |              |                        |

#### Tax bases for various tax revenues in Kenya (1973-2003)

| Year | Private Final Consumption | GDP | Imports, c.i.f. |
|------|---------------------------|-----|-----------------|
| 1973 |                           |     |                 |
| 1974 |                           |     |                 |

### **3.4 Data Analysis Techniques**

The study makes use of tables, graphs and pie charts where appropriate to present the data. Tables in particular were used to show the actual and adjusted revenues, and bases for the various tax revenues in Kenya. Graphs were used to present the revenue trend of the period of study.

The productivity of the tax system was determined by applying the concept of tax elasticity and buoyancy, that is, sensitivity of tax yields to changes in national income including discretionary measures and to national income adjusted for discretionary measures. This sensitivity is measured in terms of elasticity or responsiveness of tax revenue to changes in Gross Domestic Product (GDP), that is, income elasticity of tax yields referred to as buoyancy. A buoyancy coefficient of more than one indicates that revenue rises faster than National Income and discretionary measures combined thus reducing chances of revenues lagging behind expenditure.

#### **3.4.1 Model Specification**

Productivity of the tax system was determined by applying the concept of tax elasticity and buoyancy. Assessing tax productivity allowed a proper examination of two aspects; responsiveness of the tax system and its effects on system equity and efficiency.

Income elasticity was broken down into tax-to-base and base-to-income elasticities. The elasticity of tax was the product of these two elasticities (Tax-to-base x Base-to-income – Elasticity of Tax)

Model used to estimate buoyancy and elasticities was borrowed from Mansfield (1972) Model.

It assumed a system of  $n$  taxes showing that the tax revenue – to – income elasticity was a weighted sum of the individual tax elasticities. This is as shown below:

$$E_{TY} = \frac{T_1}{T} \left( \frac{\Delta T_1}{\Delta Y} \cdot \frac{Y}{T_1} \right) + \dots + \frac{T_k}{T} \left( \frac{\Delta T_k}{\Delta Y} \cdot \frac{Y}{T_k} \right) + \dots + \frac{T_n}{T} \left( \frac{\Delta T_n}{\Delta Y} \cdot \frac{Y}{T_n} \right) \dots \dots \dots (1)$$

Where elasticity of the total tax revenue to income is defined in equation 2 as:

$$E_{TY} = \left( \frac{\Delta T}{\Delta Y} \cdot \frac{Y}{T} \right) \dots \dots \dots (2)$$

While the elasticity of  $k^{\text{th}}$  individual tax-to-income can be expressed as:

$$E_{TY} = \left( \frac{\Delta T_k}{\Delta Y} \cdot \frac{Y}{T_k} \right) \dots \dots \dots (3)$$

Where:

$T_1$  = total tax revenue

$T_k$  = revenue from the  $k^{\text{th}}$  tax

$B_k$  = base of the  $k^{\text{th}}$  tax

$\Delta$  = change operator

Elasticity of the  $k^{\text{th}}$  tax was the product of the elasticity relative to the base and the elasticity of the base-to-income, as shown below;

$$E_{TY} = \left( \frac{\Delta T_k}{\Delta B_k} \cdot \frac{B_k}{T_k} \right) \times \left( \frac{\Delta B_k}{\Delta Y} \cdot \frac{Y}{B_k} \right) \dots \dots \dots (4)$$

Therefore in a system of  $n$  taxes, elasticity of the total tax system was given by the product of the tax-to-base elasticity and base-to-income elasticity for each separate tax, weighted by the significance of the respective tax in the tax system.



This can be stated as follows:

$$E_{T_1} = \frac{T_1}{T} \left( \frac{\Delta T_1}{T_1} \cdot \frac{B_1}{B} \right) \left( \frac{\Delta B_1}{B_1} \cdot \frac{Y}{B} \right) + \dots + \frac{T_n}{T} \left( \frac{\Delta T_n}{T_n} \cdot \frac{B_n}{B} \right) \left( \frac{\Delta B_n}{B_n} \cdot \frac{Y}{B} \right) + \dots + \frac{T}{T} \left( \frac{\Delta T}{T} \cdot \frac{B}{B} \right) \left( \frac{\Delta B}{B} \cdot \frac{Y}{B} \right)$$

### 3.4.2 Estimation Procedure

#### Elasticity

The study estimated the elasticity for each tax and for the overall tax system. The function used was:

$$T^* = \alpha Y^\beta \xi$$

Where:

$T^*$  = tax revenue

$Y$  = tax base (GDP at factor cost)

$\alpha$  and  $\beta$  = parameters to be estimated

$\xi$  = Multiplicative error

The equation is expressed as a double logarithmic function of the form:

$$\text{Log } T^* = \log \alpha + \beta \log Y + \log \xi$$

and written in a standard form as

$$\text{Log } T^* = \alpha + \beta \log Y + V_i$$

To obtain  $T^*$ , the Proportional Adjustment Method (PAM) was used to eliminate the discretionary effects from the revenue series. Therefore:

$$T^*_t = T_t - D_t$$

Where:

$T^*_t$  - Actual collection of the  $t^{\text{th}}$  year adjusted to the structure of that year

$T_t$  - Actual tax yield in the  $t^{\text{th}}$  year

$D_t$  - Budget estimate of the discretionary change(s) in the  $t^{\text{th}}$  year

Where  $\beta$  was less than one, there was inflexibility of the tax revenue in relation to its base. If it was more than one, then the revenue was flexible in relation to its base.

Since PAM method requires that the revenue yield for each year in the sample period be adjusted to generate a revenue yield based on the structure of a reference year,  $T_{1,1}$  was converted to the reference year. Therefore, to obtain the adjacent series for the  $t^{\text{th}}$  year,  $T_{1,t}$  was multiplied with the previous year's ratio of the adjacent tax revenue with reference to the base year  $(T^*)_{t-1}$  over the actual tax revenue  $(T_{t-1})$ .

$$(T^*)_1 = T_{1,1}$$

$$(T^*)_2 = [(T^*)_1 / T_1] \times T_{2,2}$$

$$(T^*)_{t,t} = [(T^*)_{t-1} / T_{t-1}] \times T_{t,t}$$

**Buoyancy:**

Buoyancy with respect to tax bases (GDP) will be derived from logarithmic regressions of unadjusted revenue data on these bases (or GDP)

$$\log T_t = \beta_0 + \beta_1 \log (Y)_t + \xi_t$$

Where:

$\beta_1$  – is the buoyancy ratio

**Proxy bases:**

Proxy bases for income taxes were domestic factor incomes derived from the data on the sources of income side of the national accounts. Since most indirect taxes (VAT, sales tax and Excise Duty) are levied at the retail and wholesale levels, private final consumption was used as the proxy base for those taxes. Proxy base for import duty was taken to be the imports from balance of payments. Proxy base for the overall tax system was the real GDP.

## CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND INTERPRETATION

### 4.1 Introduction

The data used in the study comprised of the adjusted and unadjusted tax revenues, the discretionary tax revenues and the proxy bases of different tax revenues (see appendices 3 and 4). The adjusted tax revenues are obtained by eliminating (isolating) the discretionary effects from the unadjusted revenue series. This is achieved through the formula  $T_u = T_1 - D_t$  presented in Appendix 1.

Revenue obtained through the discretionary tax measures (DTMs) shown in Appendix 3 is expressed as a proportion of the revenue from the respective source, that is, by dividing discretionary tax revenue by the total tax revenue. For example, column two is obtained by dividing discretionary tax revenue from direct taxes by the total revenue from direct taxes.

The model equations  $\text{Log } T^* = \alpha + \beta \log Y + V_t$  and  $\text{Log } T_1 = \beta_0 + \beta_1 \log (Y)_t + \xi_t$  for elasticity and buoyancy respectively were analyzed by using the Eviews computer regression method.

### 4.2 The Prior Reforms Period (1973 – 1985)

The period represents the era before major tax reforms were made in the tax system in Kenya, that is, the period before 1986's Tax Modernization Programme and the Budget Rationalization Programme of 1987. The period recorded the lowest elasticity indices for

the whole tax structure compared with other periods. The growth in proxy bases was lower than the growth rate of GDP for all the taxes. The period recorded low tax-to-base elasticities that dampened the responsiveness of the tax system. Any growth in tax revenues was the contribution of the discretionary policy in all the tax handles. Although the tax-to-base elasticities were less than base to GDP elasticities, both tax-to-base and base to GDP indices were less than unity for individual taxes. It can be concluded that during this period, the response of the tax system was sluggish, not only because of the low responses of the taxes to their bases but also due to the low response of the bases to GDP, as shown in table A.

**Table A : Kenya's Elasticity of Main Taxes and the Total Tax System 1973 – 1985**

|               | <i>Tax-to-<br/>Income</i> | <i>Tax-to-<br/>base</i> | <i>Base-to-<br/>Income</i> | <i>Buoyancy</i> | <i>Difference</i> |
|---------------|---------------------------|-------------------------|----------------------------|-----------------|-------------------|
| Import Duty   | 0.359                     | 0.425                   | 0.887                      | 0.945           | 0.586             |
| Direct Taxes  | 0.457                     | 0.348                   | 0.985                      | 0.9247          | 0.4677            |
| Excise Duty   | 0.073                     | 0.083                   | 0.947                      | 1.002           | 0.929             |
| Sales Tax/VAI | 0.0601                    | 0.067                   | 0.933                      | 1.187           | 1.1269            |
| Overall Tax   | 0.277                     |                         |                            | 1.044           | 0.767             |

*Source: Computed based on data from Statistical Abstracts (various years), Economic Surveys (various years)*

#### **4.2.1 Elasticity Estimates**

The total tax system elasticity for the period 1973-1985 was far below unity 0.277. The implication is that tax for this period had a low response to changes in National Income. Indeed, this is a situation that implies a high level of rigidity of the tax system. The buoyancy for the same period is a lot higher than the elasticity at 1.044 implying that

much of the tax productivity has been a result of discretionary changes made by the government rather than automatic response of the tax system.

The performance of most taxes was not appealing given that all had a coefficient lower below unity. Direct taxes ha the highest Elasticity of 0.46 followed by Import Duty with a coefficient of 0.36. Whereas all the individual taxes reflect the same trend, the main contributors to the overall low elasticity are sales/VAT (0.0601) and Excise duties (0.073). Similarly the main source of the low tax to GDP elasticity is the low tax-to-base elasticity. The results do not differ markedly from the findings for the whole period (1973 – 2003). However, the overall tax to GDP elasticity coefficient for the pre-reform period (1973-1985) is almost half of the tax to GDP elasticity ratio for the whole period (1973-2003). A possibility of low administrative efficiency during this period can not be ruled out.

Direct taxes were inelastic with respect to both the base and the GDP. The finding is explained by the following factors: the pre-reform period was characterized by the narrow bases of individual and corporate taxes, the tax rates were also high (to 65%), the structure of taxation was highly differentiated with many tax rates across different businesses and in most cases exposed taxpayers to double taxation such as in dividend income. the income tax system had been generous on exemptions and lastly but not least, there were weaknesses in income tax administration since taxpayer information management systems were poor. These factors made the tax system complex, leaving loopholes for tax evasion and corruption.

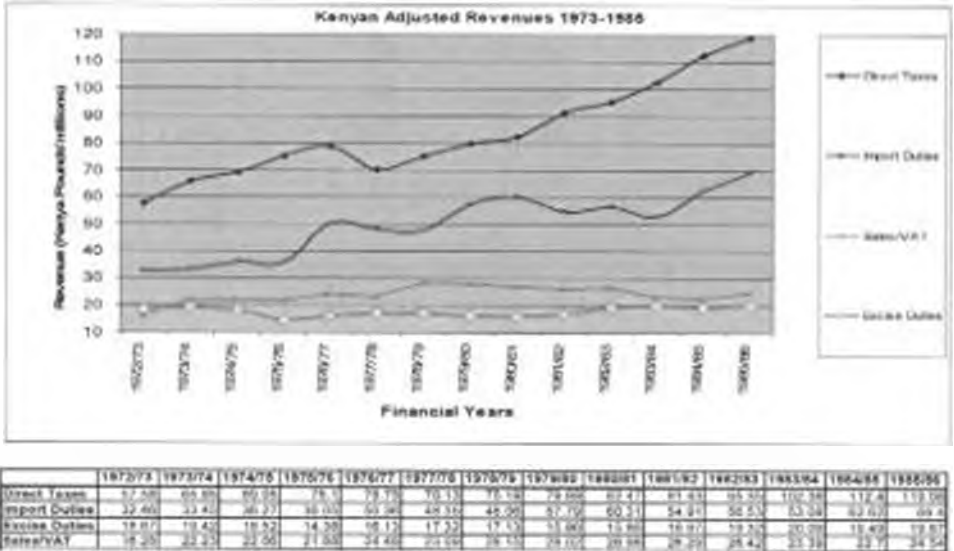
## 4.2.2 Buoyancy Estimates

The buoyancy index for the overall tax system during the 1973-1985 period was 1.044. This is slightly above one but more impressive given that it is expected that tax should at least change at the same rate as income change. This was due to the high buoyancies of the sales/VAT and excise duties. However it is lower than the overall tax buoyancy for the period 1973-2003.

An analysis of the difference between the buoyancy and the tax-to-income elasticity indices reveal that Sales Tax/VAT resulted in a large revenue impact, so that for every 1% increase in GDP, the DTMs mobilized an additional 1.1269% in sales tax/VAT revenue. Conversely, the DTMs had the lowest impact on the yield from direct taxes.

Sales Tax had the highest buoyancy of 1.187 while Direct Taxes had the lowest at 0.92. The low Direct Tax buoyancy can be attributed to many factors including the policy by the Government to reduce the income tax to encourage production. A possibility of low performance on the part of administration cannot also be ruled out. Import Duty had a buoyancy of less than unity but at least above 90% at 0.94.

**Graph 1: Kenya's Adjusted Revenues 1973 – 1985**



*Source: Statistical Abstracts (various years), Economic Surveys (various years)*

**4.3 The Post Reforms Period (1986 – 2003)**

In this period, the overall tax system was inelastic, with buoyancy and tax to GDP elasticity exceeding unity. The same was the case for individual taxes. The only exemption was the sales tax/VAT, which recorded less than unity buoyancy and tax to GDP elasticity. The most elastic taxes were direct taxes (2.235) followed by excise duties (1.699) and import duties (1.667). Though the overall tax to GDP elasticity was greater than one, the low tax-to-income elasticity for sales tax/VAT dampened the overall responsiveness of tax revenue to changes in GDP. Thus, the high tax-to-base elasticity of direct taxes, import duties and excise duties reflect productivity of the tax reforms.



**Table B : Kenya's Elasticity of Main Taxes and the Total Tax System 1986 – 2003**

|               | <i>Tax-to-income</i> | <i>Tax-to-base</i> | <i>Base-to-income</i> | <i>Buoyancy</i> | <i>Difference</i> |
|---------------|----------------------|--------------------|-----------------------|-----------------|-------------------|
| Import Duty   | 1.667                | 2.124              | 0.756                 | 2.331           | 0.664             |
| Direct Taxes  | 2.235                | 2.498              | 0.698                 | 2.354           | 0.119             |
| Excise Duty   | 1.699                | 1.367              | 1.086                 | 1.497           | -0.202            |
| Sales Tax/VAT | 0.549                | 0.397              | 1.088                 | 0.668           | 0.119             |
| Overall Tax   | 1.498                |                    |                       | 1.677           | 0.179             |

*Source: Computed based on data from Statistical Abstracts (various years), Economic Surveys (various years)*

### 4.3.1 Elasticity Estimates

#### 4.3.1.1 Overall Elasticity

The estimated overall elasticity of tax revenues to income was substantially high at 1.498 brought by the fact that the individual tax elasticities were more than unity except for Sales Tax/VAT. Direct taxes, import duties and excise duties performed well mainly because of high tax-to-base elasticity. On the other hand, sales tax performed so poorly because of the sluggish response of revenue to changes in the bases (private consumption). Thus, the high tax to GDP elasticity was due to high tax-to-base elasticity of direct taxes, import duties, and excise duties, as well as high base-to-income elasticity for sales tax/VAT. The comparison of overall buoyancy and tax elasticity shows a small difference.

Tax to GDP elasticity exceeded the buoyancy, suggesting that the discretionary tax measures (DTMs) affecting excise duties had an adverse effect on the revenue yield. Despite this, excise duties maintained an elastic structure. It could be the case that excise

duties were positively affected by other government policies that influence private consumption such as trade taxes, exchange rate and so on. The high base-to-income elasticity of sales tax/VAI reflects the responsiveness of private final consumption to growth in GDP.

#### **4.3.1.2 Elasticity of Individual Taxes**

Direct Taxes reported the highest elasticity of 2.235. This elasticity is less than its buoyancy by 0.119. The reason is that the government as reflected in the 2006 budget speech has considerably reduced tax rates for both corporate and graduated tax rate and has intensified on tax collection and administrative efficiency. The introduction of self assessment tax systems and the Personal Identification Number (PIN) has also contributed to the success of tax productivity.

The elasticity of Excise Duty was significantly high at 1.67. The buoyancy was lower at 1.49 implying that the government tax policies had a huge impact on the tax results. The difference may be attributed to the government policy that had effects of reducing the Excise Duty rates and improve on tax collection. The high elasticity indicates a more than 1.6 times change in Excise Duty with every change in National Income.

Import Duty had a reasonably high elasticity of 1.7 implying that discretionary changes in Import Duty were more than proportionately higher than changes in income. There was a considerable improvement in performance of the tax compared to 1973-1985 where the elasticity coefficient was 0.359. Compared to buoyancy, the elasticity is lower by 0.664.

The discretionary measures had a significant impact on the tax production. The reason behind this is most likely the Government to liberalize trade and intensify on tax collection.

VAT had the worst performance with an elasticity of 0.55. However, compared to prior period (1973-1985), the tax performance is excellent having increased from 0.06 to 0.55. Like elasticity the tax had the lowest buoyancy at 0.67. The difference between VAT elasticity and buoyancy is 0.119 in favor of elasticity implying that the government had plans to reduce the tax burden. It is evident from the reduction of the VAT standard rates that the intention was to reduce the burden to encourage production.

## **4.3.2 Buoyancy Estimates**

### **4.3.2.1 Overall Buoyancy**

One would hypothesis a-priori that for a developing economy like Kenya, the overall buoyancy coefficient is greater than unity. This is because given the need for mobilizing public resources during development; those countries that are experiencing growth are expected to exhibit a growth elastic revenue base. The results for the 18 years period 1986-2003 show that the revenue structure for Kenya has been able to keep pace with economic growth and that the overall buoyancy coefficient has been more than one.

The buoyancy measure includes both automatic response (elasticity) and response to discretionary measures. Some of the discretionary measures which may have influenced responsiveness include: the Government policy to reduce certain tax rates so as to

encourage production. Within this period top rate level was reduced from 65% to 32.5% in 1998 for individuals and 45% to 30% for companies. The tax brackets on graduated tax rates have been widened by effectively reducing the tax rates. In addition, Self Assessment Programme was introduced in 1992 and Custom Duty has changed occasionally, while VAT was introduced to replace the sales tax in 1990. Like custom duty VAT has also been reduced from top 18% to 16%. Excise duty rates had both up and down movement for different commodities and lastly but not least tax administration was improved through constitution of KRA by the Government to facilitate in the collection of taxes. KRA which became operational in 1995 is the umbrella body for all the tax departments, which has seen improvement of efficiency in tax administration.

#### **4.3.2.2 Buoyancy of Individual Taxes**

Direct Taxes reported the highest buoyancy of 2.35 over the period 1986-2003. Direct taxes (Income and Corporate Taxes) are potentially the most elastic source. It is therefore expected that Direct Taxes have a high rate of response of response to national income. The results of this study confirm the expectation. Direct taxes were found to be highly buoyant at 2.35 meaning that when national income increases, the income tax increases more than proportionately. This means that the tax systems succeed on two grounds; first, that the revenue generated responds to the need to expand public expenditure and second, the tax succeeds as a built-in-stabilizer where by Direct Tax respond to change in national income automatically reduces the negative effects of inflation. This high responsiveness cannot be explained by one factor. Unless discretionary measures effect on taxes is removed from the tax collected, one cannot point a particular factor to cause high

responsiveness. However, it is evident that there has been good performance of the tax in generating desired revenue.

Import Duty had a similar performance to Direct Taxes. At buoyancy coefficient of 2.33, the performance was impressive. The responsiveness was good enough to facilitate financing of public expenditure. The level of buoyancy may be attributed to among others the liberalization of the economy as required by the structural adjustment programmes, and tax administration vigilance on imported goods. The government intense in collecting more tax could be another reason.

Excise Duty reported a buoyancy of 1.497 which was significantly above unity. This high buoyancy coupled with the fact that Excise Duty is the third major tax in terms of revenue contribution had a significant effect on the overall tax productivity.

Value Adder Tax was introduced in 1989/90 fiscal year. It was expected to boost overall revenue productivity. It was aimed at improving on the revenue collection and administration replacing the Sales Tax. Far from expectation, the VAT performance was the poorest as it was the only tax that reported a buoyancy coefficient of less than one (0.67). Given the need to raise increasing revenue to finance expenditure in Kenya, VAT had a low performance in raising the overall tax productivity.

**Graph 2: Kenya's Adjusted Revenues 1986 – 2003**



|               | 1986/87 | 1987/88 | 1988/89 | 1989/90 | 1990/91 | 1991/92 | 1992/93 | 1993/94 | 1994/95 | 1995/96 | 1996/97 | 1997/98 | 1998/99 | 1999/00 | 2000/01 | 2001/02 | 2002/03 |
|---------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Direct Taxes  | 129.31  | 136.82  | 143.01  | 159.86  | 175.71  | 182.97  | 269.89  | 286.90  | 292.97  | 298.37  | 308.01  | 326.42  | 324.75  | 389.30  | 467.03  | 486.32  | 541.21  |
| Import Duties | 72.42   | 77.21   | 81.74   | 82.76   | 78.84   | 97.77   | 118.75  | 121.20  | 122.06  | 126.83  | 135.81  | 149.21  | 154.79  | 145.43  | 104.01  | 83.11   | 108.82  |
| Excise Duties | 26.17   | 19.89   | 17.89   | 17.27   | 23.12   | 25.15   | 27.44   | 35.71   | 34.45   | 39.17   | 42.24   | 43.00   | 46.48   | 43.23   | 47.98   | 52.81   | 62.18   |
| Sales/VAT     | 26.81   | 24.16   | 24.55   | 25.79   | 26.73   | 27.92   | 31.06   | 27.86   | 24.84   | 30.25   | 31.74   | 34.58   | 27.53   | 45.83   | 48.23   | 51.01   | 54.88   |

*Source: Statistical Abstracts (various years), Economic Surveys (various years)*

#### 4.4 The Consolidated Results (1973 – 2003)

**Table C : Kenya's Elasticity of Main Taxes and the Total Tax System 1973 - 2003**

|               | <i>Tax-to-income</i> | <i>Tax-to-base</i> | <i>Base-to-income</i> | <i>Buoyancy</i> | <i>Difference</i> |
|---------------|----------------------|--------------------|-----------------------|-----------------|-------------------|
| Import Duty   | 0.425                | 0.399              | 1.044                 | 1.131           | 0.706             |
| Direct Taxes  | 0.539                | 0.54               | 1.123                 | 1.372           | 0.833             |
| Excise Duty   | 0.447                | 0.397              | 1.027                 | 1.584           | 1.137             |
| Sales Tax/VAT | 0.202                | 0.222              | 1.045                 | 0.663           | 0.461             |
| Overall Tax   | 0.623                |                    |                       | 1.112           | 0.489             |

*Source: Computed based on data from Statistical Abstracts (various years), Economic Surveys (various years)*

The results presented in Table C indicate that the elasticity for Kenya's overall tax system is 0.623. On this basis, it can be argued that the growth in GDP spurred a less than proportionate automatic increase in tax revenue. Specifically, this means that the tax system yielded a 0.623% change in tax revenue (resulting from economic activity alone) for every 1% change in GDP. Thus, a decreasing proportion of incremental income was transferred to the government in the form of tax revenues, meaning that the tax structure in Kenya was inelastic. As it will be observed later, the result is due to high inelasticity of 1973-1985, shown in Table A, which overwhelmed the fair elasticity of 1986-2003.

A number of observations can also be made on the bases of the figures obtained in Table C. First, the low tax-to-income elasticity of direct taxes, import taxes, excise duties and sales taxes/VAT adversely affected the overall elasticity of the total tax. Clearly, the overall elasticity of the tax system is a consequence of the inelastic individual taxes. A comparison of the tax handles reveals that direct taxes had the highest tax-to-income elasticity coefficient, while sales tax/VAT had the lowest. The low tax-to-base elasticity of the sales tax probably reflects the combined effect of evasion and inefficient tax administration over the period.

Excise duties reported a low tax-to-income elasticity of 0.447. This is the product of a low tax-to-base elasticity of 0.397 and an almost unitary base-to-income elasticity of 1.027. The low tax to base elasticity indicates either inefficiency in tax administration or the existence of a black market for dutiable goods in the neighboring countries. These goods include cigarettes and beer sold in Tanzania and Uganda through illegal channels.

Otherwise a high proxy base-to-income reflects a faster growth in manufacturing output relative to GDP. Given that the effects of the discretionary tax measures (DTMs) tend to be short-lived, major tax reforms should be initiated to encourage a long run process that will take advantage of high base-to-income indices.

The combined period (1973-2003) results indicate that individual tax bases responded favorably to changes in income. Unfortunately, the growth in tax revenue lagged behind the growth in individual bases. This further dampened the responsiveness of tax revenue to changes in GDP. Direct taxes which had a near unitary elasticity of base-to-income, reported an inelastic tax to base of 0.54 this probably signifies tax evasion and tax avoidance.

A comparison of buoyancy and elasticity estimate is important as it reveals the revenue impact of discretionary policy. Table C results indicate that buoyancies exceed the tax-to-income elasticity in all cases. The largest difference between buoyancy and tax-to-income relates to excise duties. In fact, for excise duties, discretionary policy yielded a 1.137% change in revenue arising from 1% GDP growth.

Thus the growth in revenue from excise duties was mainly explained by the discretionary changes undertaken over the period. The other taxes also indicate that DTMs had somewhat favorable effect on the growth of the tax revenue as reflected in the buoyancy exceeding the tax-to-income elasticity. This is also the case for the overall tax structure, which yielded a difference of 0.489%.



Table C gives a decomposition of tax-to-income elasticity into its constituent parts (tax-to-income and base-to-income /GDP). It is evident that the inelasticity of the Kenya's tax system is due to the low tax-to-base elasticity of individual taxes. Since the base-to-income elasticities for all taxes are slightly greater than unity, the critical concern for the tax authorities will be to raise the responsiveness of the individual taxes to the base. Also to note is that sales tax/VAl recorded the lowest tax to base elasticity.

## CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

### 5.1 Summary of Findings and Conclusions

#### 5.1.1 Summary of Findings

The study set out to establish the effect of tax reforms on tax productivity of the tax system in Kenya for the period 1973-2003. At the outset, the importance of revenue productivity especially for a developing country like Kenya was explained. Whereas it was reckoned that tax objectives are a question of trade-off due to their conflict, it is observed that the revenue productivity takes the most important role in shaping the direction of the tax system for a developing country. In Kenya specifically, reforms have been undertaken both revenue requirements and in responsive to specific economic policies. In general, equity, revenue adequacy, neutrality and simplicity have been the major objectives pursued in reforms.

Productivity was measured through buoyancy and elasticity and the Proportional Adjustment Method (PAM) was employed to adjust for discretionary measure effects in estimating elasticity. The double logarithmic model was used to estimate elasticity and buoyancy coefficient for the thirty one year period (1973-2003) of the study.

The findings revealed that during the reform period, the overall tax system yielded an elasticity of 0.277 against a buoyancy index of 1.044 (a difference of 0.767). In comparison, the post reform period recorded a buoyancy and elasticity of 1.677 and 1.498

respectively (a difference of 0.179). It is apparent that the buoyancy index increased by almost 61% between the two periods, while the elasticity ratio increased by almost 441%.

On the basis of the change in the buoyancy and elasticity indexes, it can be concluded that the reforms improved the response of the tax revenue to both automatic changes in GDP and DTMs. However, the difference between buoyancy and inelasticity indicates that the revenue impact on DTMs during the pre-reform period exceeded the post-reform impact of the DTMs. Thus, the growth in revenue accounted for by discretionary action was greater before the reforms than after the reforms.

The reforms improved tax-to-income elasticity of direct taxes from 0.539 to 2.235, excise duties from 0.073 to 1.699 and import duties from 0.359 to 1.667. In the case of sales tax/VAT there was a drop from 0.601 to 0.549. One of the greatest achievements of tax reforms was to make both the whole tax structure and the individual tax handles more elastic. Whereas all other taxes became elastic after the reforms and the elasticity of sales tax/VAT improved, thus latter revenue source remained inelastic. It is notable that the reforms had different impact on different taxes. Some taxes were more responsive than others.

The pre reform findings of the study tend to coincide with earlier results. However, the results for the post reforms period differ from most of these studies. Again, unlike the current study, past studies were more concentrated on the impact of DTMs on the tax revenue. Specifically, they derived elasticity and buoyancy indices for the tax system and computed the difference. In contrast, this study went further to compute the buoyancy

and elasticity indices of the pre-reform and the post reform periods as well as the combined period. In so doing, the approach provided a broader framework through which the impact of the reforms on each index (elasticity and buoyancy) between the periods could not be discerned.

### **5.1.2 Conclusions**

The reforms thus seem to have had greater impact on the elasticity than on buoyancy. This implies that the growth in tax revenue during the reform period was accounted for by the automatic changes rather than discretionary policy. This is expected because one of the main objectives of the tax reforms is to raise the automatic response of the tax system to changes in GDP rather than the response of the tax structure to discretionary policy of the government. It is thus concluded that the reforms period was accompanied by a sluggish response of the tax system to discretionary policy.

The elasticity of indirect taxes was low and that of direct taxes high, especially after reforms. This is explained by the relative tax to base elasticity, which is high for direct taxes and low for indirect taxes. This suggests that revenue leakage is still a major problem for indirect taxes. For direct taxes, it can be attributed to the relative effectiveness of the reforms in direct taxes, which not only made the tax system simpler but also reduced the avenues for evasion, avoidance and corruption.

Such reforms include the introduction of Personal Identification Number (PIN), lower rates, reduction of exemptions and shift away from multiple rates across many categories.

Generally, the computed tax to base elasticities for the pre-reform period are lower than the corresponding post reform tax to base elasticities for all taxes. This suggests that the post reform tax structure was generally flexible. There are also variations between pre reform and post-reform base-to-income elasticities. For direct taxes and import duties, the base-to-income elasticities for the pre reform period are higher than the corresponding post reform elasticities. The reverse is true for excise duties and sales tax/VAT. In this case, the pre reform base-to-income elasticities exceed the corresponding post reform elasticities.

It can be argued that the reforms had an overall positive impact on tax responsiveness, this result worked more effectively through increased flexibility of the tax to base component and less effectively through the elasticity of the base-to-income component. There is a marginal increase in the responsiveness of private consumption to changes in GDP, however, which improved the flexibility of excise duties and sales/VAT.

## **5.2 Recommendations**

Though the reform experience seems encouraging, there is still scope for improvement. Kenya's tax reform programme should seek to continue to improve the efficiency and productivity of taxation, as well as to improve tax collection and administration, while lowering tax rates and gaining effectiveness through greater tax elasticity. The critical concern for tax authorities will be to raise the responsiveness of the individual taxes to the base.

Policy makers should note that the most rigid tax system was VAT. The empirical analysis indicates that reform raised the productivity of the tax system with the exception of the sales tax/VAT. The low elasticity of the sales tax/VAT in both periods is surprising given that the base grew faster than income. This suggests collusion between the tax collectors and the tax payers among other things. Despite substantial reform, significant review and rationalization of the rates under VAT, further improvements are required in the area of reduction of rates and exemptions, increasing VAT administration capacity through a higher budgetary outlay, increasing tax collectors' salaries, reviewing collusion penalties upwards, and strengthening the development of audit skills. Additional capacity is required in areas such as automation, audit and risk profiling, and general skill development.

The tax authorities should also pay more attention to tax payer education, compliance and tax audits. With complex tax laws, tax payers have to bear additional costs in order to interpret the law and process tax returns. This tends to give the taxpayer an incentive to evade tax and therefore provides a rationale for aggressive taxpayer education. For instance, the income tax Act has not been reviewed since 1989 even as many social economic changes have taken place over the period. Tax audits would ensure that individuals and corporations maintain proper books of account for tax purposes.

The ongoing Revenue Administration Reform and Modernization Programme by KRA is a commendable plan towards modernizing tax collection and enhancing effectiveness in tax reforms.

### 5.3 Limitations of the Study

The study is solely concerned with the tax productivity as affected by the reforms. Reforms can however be evaluated on other grounds in order to enable better appreciation of their contribution to other avenues in the economy.

The tax revenue productivity analysis used the proportional adjustment method to adjust for discretionary measures. The tax budget cannot fully capture all the effects of discretionary measures of tax system. This method has also made an explicit assumption that a particular discretionary measure only affects the particular tax to which it is addressed. However, different taxes are linked to each other through the economic system and change in one tax may affect yields of another.

This study assumed that the improvement of tax elasticities and buoyancies between the pre reform and post reform period was solely brought by the 1986's Tax Modernization and Budget Rationalization Programmes. Other factors that lead to improvement of tax productivity between the two periods need to be evaluated in order to establish the extent of their effect on tax yield.

In the past, tax exemptions have been used quite extensively in Kenya tax system. The exemptions are known to reduce the base on which a tax is levied hence influencing the base-to-income elasticity. Effects of the exemptions on overall tax elasticity were not considered in this study.

Lastly but not least, the study made use of secondary data and therefore any computational errors that were previously made either by KRA, the Ministry of Finance or the Ministry of Planning and Development manifested themselves in this study.

#### **5.4 Suggestions for Further Research**

The following areas are recommended for further study:

An analysis of the tax system productivity using other methods of capturing discretionary changes. Of great concern also might be the reforms' impact on other government revenues and generally on revenue generation. An study on to evaluate the success of tax system in meeting other economic objectives including redirecting investment to high priority areas, increasing the level of savings in the economy and stimulating trade should be taken. Such effects that the tax system has impact on need to be evaluated in order to appreciate the importance of reforms.

A study should also be conducted on the extent of tax evasion in Kenya.



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## APPENDICES

### APPENDIX 1: Kenya Actual and Adjusted Tax Revenues (1973-2003)

| Year    | Direct Tax | Adjusted Direct Tax | Import Duty | Adjusted Import Duty | Excise Duty | Adjusted Excise Duty | Sale Tax/VAT | Adjusted Sales Tax/VAT |
|---------|------------|---------------------|-------------|----------------------|-------------|----------------------|--------------|------------------------|
| 1972/73 | 58.80      | 57.58               | 39.80       | 32.46                | 20.80       | 18.67                | 32.00        | 16.25                  |
| 1973/74 | 77.20      | 65.85               | 42.10       | 33.45                | 22.70       | 19.42                | 46.90        | 22.23                  |
| 1974/75 | 90.20      | 69.05               | 49.20       | 36.27                | 20.60       | 18.52                | 59.30        | 22.06                  |
| 1975/76 | 108.00     | 75.10               | 52.90       | 36.05                | 28.22       | 14.38                | 65.40        | 21.88                  |
| 1976/77 | 143.00     | 78.75               | 104.20      | 50.36                | 38.50       | 16.13                | 92.80        | 24.48                  |
| 1977/78 | 151.70     | 70.13               | 101.30      | 48.35                | 49.00       | 17.32                | 99.80        | 23.09                  |
| 1978/79 | 173.60     | 75.19               | 102.50      | 48.06                | 59.50       | 17.13                | 154.90       | 28.15                  |
| 1979/80 | 198.30     | 79.89               | 146.00      | 57.79                | 60.20       | 15.96                | 179.40       | 28.02                  |
| 1980/81 | 201.10     | 82.47               | 183.70      | 60.31                | 64.00       | 15.86                | 194.80       | 26.96                  |
| 1981/82 | 231.80     | 91.43               | 175.80      | 54.91                | 74.00       | 16.97                | 195.90       | 26.29                  |
| 1982/83 | 251.70     | 95.35               | 171.20      | 56.53                | 79.40       | 19.32                | 253.70       | 26.42                  |
| 1983/84 | 301.00     | 102.38              | 152.20      | 53.08                | 78.80       | 20.09                | 273.60       | 23.39                  |
| 1984/85 | 358.10     | 112.40              | 211.80      | 62.62                | 89.00       | 19.49                | 303.60       | 22.70                  |
| 1985/86 | 386.70     | 119.08              | 246.70      | 69.40                | 106.30      | 19.87                | 397.60       | 24.54                  |
| 1986/87 | 454.60     | 129.31              | 273.70      | 73.42                | 123.10      | 20.17                | 520.00       | 26.81                  |
| 1987/88 | 512.00     | 136.62              | 301.00      | 77.21                | 137.50      | 19.99                | 588.30       | 24.16                  |
| 1988/89 | 599.20     | 147.01              | 348.00      | 81.74                | 149.40      | 17.89                | 640.30       | 24.55                  |
| 1989/90 | 713.08     | 159.66              | 334.68      | 82.76                | 185.16      | 17.27                | 766.07       | 25.79                  |
| 1990/91 | 861.39     | 175.71              | 255.93      | 78.84                | 340.46      | 23.12                | 927.77       | 26.75                  |
| 1991/92 | 998.52     | 192.97              | 459.15      | 97.77                | 418.35      | 25.15                | 1,107.14     | 27.92                  |
| 1992/93 | 1,838.36   | 269.89              | 739.64      | 116.75               | 556.27      | 27.44                | 1,449.72     | 31.06                  |
| 1993/94 | 2,175.29   | 286.89              | 929.91      | 121.25               | 966.61      | 35.71                | 1,226.69     | 27.86                  |
| 1994/95 | 2,404.12   | 293.97              | 1,058.78    | 122.06               | 1,130.59    | 38.45                | 1,420.19     | 29.89                  |
| 1995/96 | 2,418.75   | 288.37              | 1,129.70    | 126.83               | 1,184.36    | 39.37                | 1,492.50     | 30.25                  |
| 1996/97 | 2,778.98   | 309.01              | 1,228.35    | 135.81               | 1,419.08    | 42.24                | 1,723.41     | 31.74                  |
| 1997/98 | 2,761.74   | 308.42              | 1,421.20    | 149.21               | 1,426.66    | 43.05                | 1,960.24     | 34.58                  |
| 1998/99 | 2,992.20   | 324.75              | 1,532.50    | 154.79               | 1,567.50    | 46.48                | 2,065.00     | 37.53                  |
| 1999/00 | 2,671.45   | 389.30              | 1,440.19    | 145.47               | 1,424.05    | 42.23                | 2,511.05     | 45.63                  |
| 2000/01 | 2,793.10   | 407.03              | 1,079.18    | 109.01               | 1,603.85    | 47.56                | 2,543.58     | 46.23                  |
| 2001/02 | 3,337.21   | 486.32              | 921.81      | 93.11                | 1,784.21    | 52.91                | 2,806.76     | 51.01                  |
| 2002/03 | 3,707.15   | 540.23              | 1,084.20    | 109.52               | 2,096.95    | 62.18                | 3,020.25     | 54.89                  |

*Adjusted figures are the computed amounts using the proportional adjustment technique. The amounts are expressed in Kenya pounds (millions)*

## APPENDIX 2: The Regression Results for the Tax Elasticities and Buoyancies

*Table 1.3: Kenya Buoyancy and Elasticity of main taxes and total tax system (1973-1985)*

|               | Elasticity | t-ratio | R <sup>2</sup> | DW'   | Buoyancy | t-ratio | R <sup>2</sup> | DW'  |
|---------------|------------|---------|----------------|-------|----------|---------|----------------|------|
| Import Duty   | 0.359      | 9.4     | 0.923          | 1.67  | 0.945    | 13      | 0.934          | 1.35 |
| Direct Taxes  | 0.457      | 1.83    | 0.398          | 1.97  | 0.9247   | 43.2    | 0.978          | 1.54 |
| Excise Duty   | 0.073      | 1.38    | 0.146          | 1.02  | 1.002    | 1.68    | 0.331          | 1.59 |
| Sales Tax/VAT | 0.0601     | 1.39    | 0.152          | 0.933 | 1.187    | 21.7    | 0.929          | 1.65 |
| Overall Tax   | 0.277      | 17.3    | 0.955          | 2.25  | 1.044    | 29.9    | 0.987          | 1.23 |

*Table 1.4: A Decomposition of the Tax-to-Income elasticity of main taxes (1973-1985)*

|              | tax-to-base | t-ratio | R <sup>2</sup> | DW'  | base-to-income | t-ratio | R <sup>2</sup> | DW'  |
|--------------|-------------|---------|----------------|------|----------------|---------|----------------|------|
| Import Duty  | 0.425       | 11.2    | 0.903          | 2.38 | 0.887          | 15.8    | 0.932          | 1.95 |
| Direct Taxes | 0.348       | 1.86    | 0.302          | 2.09 | 0.985          | 34.55   | 0.967          | 1.34 |
| Excise Duty  | 0.083       | 1.37    | 0.201          | 1.01 | 0.947          | 36.7    | 0.173          | 1.01 |
| Sales /VAT   | 0.067       | 1.37    | 0.123          | 0.93 | 0.933          | 0.911   | 0.991          | 2.55 |

*Table 1.5: Kenya Buoyancy and Elasticity of main taxes and total tax system (1986-2003)*

|               | Elasticity | t-ratio | R <sup>2</sup> | DW'  | Buoyancy | t-ratio | R <sup>2</sup> | DW'   |
|---------------|------------|---------|----------------|------|----------|---------|----------------|-------|
| Import Duty   | 1.667      | 4.234   | 0.703          | 1.88 | 2.331    | 3.67    | 0.655          | 1.83  |
| Direct Taxes  | 2.235      | 4.997   | 0.687          | 0.94 | 2.354    | 5.73    | 0.749          | 1.72  |
| Excise Duty   | 1.699      | 1.754   | 0.253          | 1.76 | 1.497    | 2.21    | 0.293          | 1.46  |
| Sales Tax/VAT | 0.549      | 7.504   | 0.833          | 1.19 | 0.668    | 9.65    | 0.872          | 1.15  |
| Overall Tax   | 1.498      | 4.622   | 0.724          | 1.24 | 1.677    | 5.12    | 0.795          | 0.959 |

*Table 1.6: A Decomposition of the Tax-to-Income elasticity of main taxes (1986-2003)*

|               | tax-to-base | t-ratio | R <sup>2</sup> | DW'  | base-to-income | t-ratio | R <sup>2</sup> | DW'  |
|---------------|-------------|---------|----------------|------|----------------|---------|----------------|------|
| Import Duty   | 2.124       | 2.25    | 0.34           | 1.57 | 0.756          | 3.22    | 0.61           | 2.21 |
| Direct Taxes  | 2.498       | 4.41    | 0.63           | 1.42 | 0.698          | 4.87    | 0.723          | 1.43 |
| Excise Duty   | 1.367       | 1.83    | 0.23           | 1.64 | 1.086          | 71.7    | 0.976          | 2.42 |
| Sales Tax/VAT | 0.397       | 2.71    | 0.35           | 1.3  | 1.088          | 71.9    | 0.925          | 2.45 |

*The coefficients of elasticity were obtained after applying the Evlens computer regression method and use of the Cochrane-Orcutt iterative procedure to solve the problem of auto-correlation*

**APPENDIX 3: Tax Revenue obtained through Discretionary Tax Measures (1973-2003)**

| Year    | Direct Taxes | Import Duties | Excise Duties | Sales/VAT |
|---------|--------------|---------------|---------------|-----------|
| 1972/73 | 0.0645       | 0.0741        | 0.0001        | 0.1848    |
| 1973/74 | 0.0349       | -0.0030       | 0.0120        | 0.0000    |
| 1974/75 | 0.0453       | -0.0024       | 0.0000        | 0.1620    |
| 1975/76 | 0.0222       | 0.0000        | 0.0000        | 0.0927    |
| 1976/77 | 0.0000       | 0.0812        | 0.1771        | 0.0245    |
| 1977/78 | 0.1713       | 0.0480        | -0.0415       | 0.1105    |
| 1978/79 | 0.0000       | 0.0039        | 0.1306        | 0.0731    |
| 1979/80 | 0.0000       | 0.0195        | 0.0874        | 0.0291    |
| 1980/81 | 0.0151       | 0.0000        | 0.0598        | 0.1226    |
| 1981/82 | 0.0000       | 0.1361        | 0.0156        | 0.0359    |
| 1982/83 | -0.0646      | 0.0000        | 0.0000        | 0.0192    |
| 1983/84 | 0.0000       | -0.0876       | -0.1889       | 0.2050    |
| 1984/85 | 0.0000       | 0.1110        | 0.1085        | 0.0958    |
| 1985/86 | 0.0450       | -0.0566       | 0.0775        | 0.0659    |
| 1986/87 | -0.0371      | 0.0041        | 0.0659        | 0.0622    |
| 1987/88 | 0.0000       | -0.0094       | 0.0536        | 0.0460    |
| 1988/89 | 0.0033       | 0.0055        | 0.0720        | 0.0410    |
| 1989/90 | 0.0088       | 0.0287        | 0.2075        | 0.0141    |
| 1990/91 | 0.0083       | -0.0956       | 0.1377        | 0.0681    |
| 1991/92 | 0.0084       | -0.0586       | 0.0441        | 0.0560    |
| 1992/93 | -0.0015      | 0.2076        | 0.0072        | 0.0419    |
| 1993/94 | 0.0406       | 0.0093        | 0.1059        | 0.0326    |
| 1994/95 | 0.0141       | 0.1359        | 0.0162        | 0.0231    |
| 1995/96 | 0.0379       | -0.0094       | 0.0000        | -0.0094   |
| 1996/97 | 0.0006       | -0.0016       | 0.0000        | 0.3430    |
| 1997/98 | -0.0004      | -0.0484       | 0.0436        | 0.0190    |
| 1998/99 | -0.0020      | 0.0077        | -0.0658       | -0.5340   |
| 1999/00 | -0.0189      | -0.0046       | 0.0000        | -0.0602   |
| 2000/01 | -0.0235      | -0.0033       | 0.0000        | -0.0973   |
| 2001/02 | 0.0000       | -0.0035       | 0.0044        | -0.0084   |
| 2002/03 | 0.0025       | 0.0083        | -0.0873       | 0.0000    |

*Revenue obtained through DTMs is expressed as a proportion of the revenue from the respective sources. (e.g the second column is obtained by dividing discretionary tax revenue from direct taxes by the total revenue from direct taxes)*

*Source: Republic of Kenya; Budget Speeches (various years)*

**APPENDIX 4: Tax Bases for Various Tax Revenues in Kenya (1973-2003)**

| Year    | Private Final Consumption (in million Shillings) | GDP (in million Shillings) | Imports, c.i.f. (in million Shillings) |
|---------|--|----------------------------|--|
| 1972/73 | 10848  | 15790                      | 4316                                   |
| 1973/74 | 12554  | 18776                      | 7327                                   |
| 1974/75 | 16240  | 21140                      | 6948                                   |
| 1975/76 | 17908  | 25562                      | 8113                                   |
| 1976/77 | 20680  | 32699                      | 10663                                  |
| 1977/78 | 24977  | 35601                      | 13225                                  |
| 1978/79 | 28896  | 39543                      | 12228                                  |
| 1979/80 | 32178  | 44648                      | 15747                                  |
| 1980/81 | 37203  | 51641                      | 17413                                  |
| 1981/82 | 44612  | 58214                      | 17809                                  |
| 1982/83 | 48734  | 66218                      | 17802                                  |
| 1983/84 | 56481  | 72550                      | 21180                                  |
| 1984/85 | 58435  | 100831                     | 23589                                  |
| 1985/86 | 70385  | 117472                     | 26163                                  |
| 1986/87 | 81654  | 131169                     | 28618                                  |
| 1987/88 | 94127  | 151194                     | 35303                                  |
| 1988/89 | 111149   | 171589                     | 44779                                  |
| 1989/90 | 121655   | 195536                     | 50913                                  |
| 1990/91 | 142419   | 224232                     | 52918                                  |
| 1991/92 | 178571   | 264475                     | 69097                                  |
| 1992/93 | 210596   | 333616                     | 101128                                 |
| 1993/94 | 250098   | 400700                     | 115080                                 |
| 1994/95 | 322622   | 465654                     | 155168                                 |
| 1995/96 | 359442   | 528740                     | 168486                                 |
| 1996/97 | 453173   | 623235                     | 190674                                 |
| 1997/98 | 513249   | 694029                     | 193032                                 |
| 1998/99 | 540400   | 743479                     | 198313                                 |
| 1999/00 | 609862   | 796343                     | 236613                                 |
| 2000/01 | 665208   | 878731                     | 250782                                 |
| 2001/02 | 701822   | 962686                     | 255569                                 |
| 2002/03 | 805163   | 1091640                    | 282616                                 |

*Sources: Statistical Abstracts (various years), Economic Surveys (various years)*



**APPENDIX 4: Tax Bases for Various Tax Revenues in Kenya (1973-2003)**

| Year    | Private Final Consumption (in million Shillings) | GDP (in million Shillings) | Imports, e.t.f. (in million Shillings) |
|---------|--|----------------------------|--|
| 1972/73 | 10848  | 15790                      | 4316                                   |
| 1973/74 | 12554  | 18776                      | 7327                                   |
| 1974/75 | 16240  | 21140                      | 6948                                   |
| 1975/76 | 17908  | 25562                      | 8113                                   |
| 1976/77 | 20680  | 32699                      | 10663                                  |
| 1977/78 | 24977  | 35601                      | 13225                                  |
| 1978/79 | 28896  | 39543                      | 12228                                  |
| 1979/80 | 32178  | 44648                      | 15747                                  |
| 1980/81 | 37203  | 51641                      | 17413                                  |
| 1981/82 | 44612  | 58214                      | 17809                                  |
| 1982/83 | 48734  | 66218                      | 17802                                  |
| 1983/84 | 56481  | 72550                      | 21180                                  |
| 1984/85 | 58435  | 100831                     | 23589                                  |
| 1985/86 | 70385  | 117472                     | 26163                                  |
| 1986/87 | 81654  | 131169                     | 28618                                  |
| 1987/88 | 94127  | 151194                     | 35303                                  |
| 1988/89 | 111149   | 171589                     | 44779                                  |
| 1989/90 | 121655   | 195536                     | 50913                                  |
| 1990/91 | 142419   | 224232                     | 52918                                  |
| 1991/92 | 178571   | 264475                     | 89097                                  |
| 1992/93 | 210596   | 333616                     | 101128                                 |
| 1993/94 | 250098   | 400700                     | 115080                                 |
| 1994/95 | 322622   | 465654                     | 155168                                 |
| 1995/96 | 359442   | 528740                     | 168486                                 |
| 1996/97 | 453173   | 623235                     | 190674                                 |
| 1997/98 | 513249   | 694029                     | 193032                                 |
| 1998/99 | 640400   | 743479                     | 198313                                 |
| 1999/00 | 609862   | 796343                     | 236613                                 |
| 2000/01 | 665208   | 878731                     | 260782                                 |
| 2001/02 | 701822   | 962686                     | 255569                                 |
| 2002/03 | 805163   | 1091640                    | 282616                                 |

*Sources: Statistical Abstracts (various years), Economic Surveys (various years)*