EFFECT OF I-TAX ADOPTION ON THE BUOYANCY OF TAX REVENUES IN KENYAN TAX SYSTEM

By

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DECLARATION AND APPROVAL

This research proposal is my original work and has not been presented for award of any degree in any University.

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DEDICATION

To my beleloved family

LIST OF ABBREVIATIONS

COMESA	Common market of eastern and southern africa
ICPAK	Institute of Certified Public Accountants of Kenya
KIPPRA	Kenya Institute of Public Policy Research and Analysis
KNBS	Kenya National Bureau of Statistics
KRA	Kenya Revenue Authority
EU	European Union
FMIS	Financial Management Information System
HIPC	Heavily Indebted Poor Country
IMF	International Monetary Fund
RARMP	Revenue Administration and Modernazation Programme
PAYE	Pay As You Earn
IT	Information Technology
i-tax	Internet taxation
MTEF	Medium-term Expenditure Framework
ODI	Overseas Development Institute
OECD	Organisation for Economic Co-operation and Development
PEFA	Public Expenditure and Financial Accountability
PEM	Public Expenditure Management
PER	Public Expenditure Review
PETS	Public Expenditure Tracking Survey
PREM	Poverty Reduction and Economic Management
PRSP	Poverty Reduction Strategy Paper
USAID	United States Agency for International Development
FASB	Financial Accounting Standards Board
GoK	Government of Kenya
VAT	Value Added Tax
ICPAK	Institute of certified public accountants of Kenya
IPSAS	International public sector accounting standards

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ABSTRACT

For along time Kenyan government has been operating deficit budgeting due to the problem of inability to collect enough tax revenue to meet recurrent and development expenditures.Due to challenge of revenue collection, Kenyan government has been implementing a number of tax reforms with the latest beng i-tax.The current study specifically will assess effect of i-tax adoption on tax buoyancy in Kenyan tax system. The specific objectives includes: To analyze the tax buoyancies of the tax system in Kenya during the pre and post i- tax reform period and to examine the effect of i-tax system on the buoyancy of individual tax revenue sources in Kenya. The research used descriptive survey design, correlational research design .Secondary data was collected from the central bank of Kenya website well as Kenya Revenue Authority website. Data collected was summarized, coded and analysed using STATA version 14 .Study employed both descriptive and inferencial statistics .Inferencial statistics involved bivariate correlation and Multiregression analysis that helped generate model summary,coefficient of determination and t-statistics. Data containing the study results was be presented using tables together with associated explanations accompanying the table.The study found out that that all tax bases have grown since the introduction itax in kenya by Kenya Revenue Authority.Study found out that low tax base bouyancies suggest laxity and deficiencies in tax administration. As the economy changes, there should be constant review of the tax structure to improve on shortcomings in the administration of tax system.The study recommended that that tax evasion magnitude, composition, growth and determinants be estimated and handled to help minimize noncompliance as this effectively defrauds the government of legally due tax revenues, thereby reducing the government's ability to provide public services, while increasing the nation's debt burden

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Sreekantaradhya (2000) notes that taxation plays a vital role developing any country. It enables resource mobilisation, allocation, distribution and stabilisation. Revenue Authorities across the world are mandated to assess, collect and enforce laws relating to a country's tax revenues. "Governments around the world are increasing the use of information and communications technologies to improve the delivery of public services and the dissemination of public adminstration information to the public"(Azmi & Kamarulzaman, 2010, p. 599). A common feature of these reforms is the use of automated systems in collecting, accounting and facilitating tax payments. This facilitates timely access to information from reliable databases, it also unifies procedures and standardizes the payments processes. The main objective of the reforms is to strengthen revenue administration (KRA, 2010)

One of the earliest adopters of online filing was the United States of America (USA), through its Internal Revenue Service (IRS).The IRS, in recognition of the need to effectively and efficiently collect taxes with minimum disruption to taxpayers employed the use of modernized Information Technology infrastructure (IRS,2007). According to eFile LLC (2016), online filing of tax returns in the USA began as early as 1986. Initially, efiling in the USA began as a small test program with only 25,000 tax returns being filed electronically.The system also allowed a tax refund to be wired directly to the taxpayers bank account. It was seen to greatly reduce the chances of making an error while filing the tax return.The test program's success led to its rollout to other cities initially not covered. Four years later 4.2 million tax returns were filed in the year 1990. As at 2013, the method had become widely popular with a record of 1 billion tax returns having been filed throughout its history.

In Africa, Nigeria for instance modernised its tax administration services in the period between 2004 and 2013. The online system was known as Integrated Tax Administration System (ITAS). The system was lauched in 2013, its main aim was to use technology to enhance tax compliance with automation of all core processes of tax administration (PwC, 2015).

The East Africa region was not left behind; Uganda and Tanzania were early reformers of their revenue administration systems in the Eastern Africa Region (KRA, 2010). Muwonge (2011) notes that in Uganda, the Uganda Revenue Authority (URA) in 2005 developed an online tax system dubbed 'e-Tax'. Muwonge (2011) further comments that the purpose of the online tax system was to enable efficiency in the tax administration process as well as reduce the taxpayer's expenses in tax compliance. In Tanzania on the other hand, electronic filing of VAT returns was introduced in October 2012 significantly reducing the time taken to file the tax returns. Additionally, in 2013 the Tanzania Revenue Authority (TRA) launched a Revenue Gateway System, an interface between the TRA and commercial banks enabling seamless payments of taxes.

The KRA identified the use of technology as a major factor of success in revenue administration reforms and overall improvement of their service delivery (KRA, 2010). Other benefits expected to be realised were reduced lead times, costs savings and reduced interaction between KRA employees and taxpayers. This would guarantee the transparency and credibility of the tax transactions and thus lower corruption between the KRA employees and taxpayers (KRA, 2010).In response to this, they launched a technology platform known as the Integrated Tax Management System (ITMS) in 2003. In October 2013, they introduced the iTax online system. The iTax online system was an improved version of the ITMS allowing additional tax processes and payments in addition to filing of tax returns. As at 2015 over 2 million taxpayers were registered on the iTax online system (KRA, 2015).

Kenya like many less developed economies is faced with economic challenges that require financial resources to meet her expenditure needs. These challenges include persistent and increasing poverty levels, declining productivity in the real sectors, inadequate skilled human resource, worsening investment environment, depleted infrastructure and limited access to quality social services. This situation is further compounded by the executive factor in decision making that result in aggravated expenditure patterns or distorted policy process. The government collects tax revenue in order to provide public goods and welfare services or correct externalities. To raise revenue the government can use a repertoire of taxes and fees on labor, goods, capital and corporations. Some of the developing countries for example Kenya find it difficult to generate revenue for the public to spend.In Kenya limited public revenue has resulted

to budget deficit. Economic analysis carried out by economists show that growth in domestic revenue in Kenya has not kept pace with the growing economy especially the expenditure demands.

The magnitude of government budget deficit has for long been viewed to be one of the likely and most essential statistic used to measure the impact of fiscal policy of a government. According to Ariyo (1997), fiscal deficit is a cyclical feature of public sector financing because some governments respond positively to the ever-increasing public demands and at the same time enhancing rising economic growth. Chipeta (1998) has observed that often, tax as a source of revenue for many governments have gone short of generating adequate revenue to match growing expenditure thus making them look for alternative ways of financing. Poverty incidences in developing countries have resulted to over-dependence on government provision of public goods like education, health and others leading to huge deficit financing. As noted by Chipeta (1998) this has created a situation of unsustainable external financing.

Developing countries face a number of institutional problems in the process of revenue generation and therefore receive a very low amount of revenue from taxation .Ttax administration and tax system reforms are the two important components of revenue generation (Brondolo *et al* (2008). The main purpose of these is to increase efficiency of tax administrations, by reducing corruption and evasion.Political instabilities in the developing countries is the second main problem of low revenue generation. One of the important characteristics of the political instability is unstable and shifting behaviors of government, which hinders the process of long-term reforms in the system. The problem of low tax revenue productivity has been aggravated by leakage of revenue due to rigid systems of revenue collection. The productivity of tax revenue is usually measured by tax buoyancy.

1.1.1 Taxation in Kenya
Taxation is a very essential element in managing national income, especially in developed countries and this has played an important role in civilized societies since their birth many years ago. Tax is compulsory levy imposed by a government or any other tax raising body, on income, expenditure, or capital assets, whereby the taxpayer does not receive anything specific in return

(Lymer and Oats, 2009). Not all payments to the government are considered to be tax payments: like charges, tolls and other levies are paid to obtain some specific services and are not tax payments.

Administration of tax should be effective in ensuring high compliance by taxpayers, and efficient in administrative costs making sure they are low relative to the revenue collected. Effective tax administration requires strong technical capacity and a well-designed tax by the administrative agency. The above agency should identify and evaluate the effects of current tax policies and those under consideration, simplify the current tax system if needed, within the economic and political spectrum, take care of any law changes and emerging avoidance practices mantaining a connection between the rule of law and administering tax.

1.1.2 Tax Revenue Buoyancy

Buoyancy of a tax system is the responsiveness of tax revenue to changes in National income and to discretionary changes (Belinga, 2014). Discretionary changes are the changes in the tax rates and rules governing the tax system. A high elasticity is desirable because it allows growth in expenditure to the finance by raising tax revenue without recourse to the politically unpopular decision to raise tax rates (Mansfield. 1972). Tax buoyancy estimates the revenue response with tax policy. Tax buoyancy measures the total response of a tax to change in the income and shows the growth that result from the automatic growth of the base, occasioned by an increase in the National Income or GDP from discretionary tax changes. Unlike tax elasticity, the estimation of tax buoyancy does not require that discretionary changes in tax policy are controlled (Belinga, 2014).

Tax buoyancy measures the responsiveness of revenues including changes in the tax system and its estimation does not require adjustments to the actual tax revenue. In a tax environment like Kenya, which has experienced many changes in tax policies, it may be difficult to identify and separate all discretionary tax policies that have been undertaken in the country (Belinga, 2014). In this context, where tax policy parameters are in a state of constant fluctuation, the tax buoyancy provides an alternative approach to tax elasticity in evaluating tax revenue performance. It is important to note that this indicator proves to be unreliable for forecasting or projections as it assumes that there is a well-defined trend in discretionary changes that have been made in the past and that the trend will continue in the future. However, the buoyancy

indicator is a valuable measure to evaluate the past responsiveness of tax revenue to overall changes in national income. (Sen, 2006) .A tax is said to be buoyant if the tax revenues increase more than proportionately in response to a rise in national income, GDP or output. One of the most important motivations for the less developed countries 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).

1.1.3 I –tax system and tax revenue collection

Electronic tax (i-tax) system was developed to replace the Online system that KRA was using. It is a web-enabled and secure application system that provides a fully-integrated and automated solution for administration of domestic taxes. Itmakes it easy for Taxpayer internet based PIN registration, returns filing, payment registration to allow for tax payments and status inquiries with real-time monitoring of accounts (Waweru 2013).i-tax is a modern computer-based assessment and collection software used by governments locally. It is a computing and accounting system for state revenues which stores all relevant and debit data in individual accounts in a data base, and therefore helps monitor and control all the tax transactions.It provides an effective, convenient and efficient way to improve collection of revenue, transparency in fiscal administration and management of local and national tax authorities. Together with a personalized taxpayer PIN, the tax authority using iTAX can automate most of the levying processes and reduce the scope for tax fraud (Waweru, 2013). Technically, iTAX is a completely integrated modular system for taxation with an open source database, which can handle all types of taxes. iTAX supports KRA in registration, assessment, collection, accounting, debt management, auditing, tax monitoring, and reporting.

1.2 Research Problem

Besides the various tax reforms in Kenya aimed at boosting the tax revenue, budget deficit is a major problem. Most of years the country experiences a budget deficit. Pre- and post i- tax administration reform periods are still characterized by budget deficits. At the same time rigid

taxation systems have been a major issue in Kenya for a long time that has been said to negatively impacts on tax revenue collection by government of Kenya. Many studies have been done on tax buoyancy, the effect of tax reforms on tax revenue productivity (Karingi et al. 2005; Wawire, 2011; Mwakalobo, 2009; Moyi and Ronge, 2006; Nada and William, 2009; and Murithi and Moyi, 2003). All these studies have attempted to measure tax buoyancy and establish the contribution of tax reforms to revenue productivity in Kenya.

The adequacy of tax revenue can be assessed by analysing the buoyancy of the total tax revenue and of the individual tax revenues as ascertained by Yaqub M. (1994). Who holds that among the causes of inadequate tax revenue are; the inelasticity of the revenue structures and inadequate tax effort. The current study seeks to bridge the gap in literature by evaluating the dual effect of i-tax adoption on buoyancy of tax revenues in the Kenyan tax system.

However no study exist that has looked at the dual effect of i-tax reform on tax revenue buoyancy in Kenya. Thus there is a serious need to analyse the effect of i-tax on adequacy of tax revenue generated in Kenya measured by tax buoyancy.

1.3 Objectives Of The Study

The main objective of this study was to establish the effect of i-tax adoption on buoyancy of tax revenues in Kenyan tax system.

1.5 Value of the study

This study was of value to a number of stakeholders. First, the management of Kenya Revenue Authority will use it as a point of reference as far as assisting in decision making regarding the determinants of tax revenue in Kenya. If the recommendations of this study are put into practice by the relevant authorizes, the country stands to benefit a great deal from an improved tax revenue collection in terms of instituting better i-tax reforms for better revenue performance. The students, researchers, policy makers, scholars and the academicians will use the study as far as further discussions or studies on the same are concerned. Therefore, it will form a basis of further research from interested individuals on the subject of tax revenue performance.

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CHAPTER TWO: LITERATURE REVIEW

2.1 introduction

The chapter covers the theoretical review, empirical review, study gap, conceptual framework and summary of literature.

2.2 Theoritical Literature Review

The following Section reviews the theoretical perspectives of public sector accounting that is relevant for this study, drawn on agency theory, stakeholder theory, institutional theory and positive accounting theory.

2.2.1 The Classical Taxation Theory

For a long time, the classical taxation theory was of most importance. As a result, taxation was only granted the fiscal role of providing state revenues. Adam Smith is considered to be the father of the scientific taxation theory. In his monograph "An Inquiry into the Nature and Causes of the Wealth of Nations" Adam Smith gave a definition of the taxation system, indicating the main conditions for its formation and putting forward four main taxation principles: equity, determination, convenience and thrift of taxation administration (Smith, 2005). All the theoretical deliberation and scientific debates of those years were focused on one singular aspect: that the execution of the taxation's function, the provision of state revenues is achieved, on basis of the principles of equity and justice. Naturally, this theoretical approach to the nature and role of taxation changed in the course of many decades and centuries, when economic relations became more complex and the need for the intensification of the state's regulatory role became more stringent. As a result, new taxation theories emerged: among them there were two directions of economic thought, which had the significant influence on the taxation policy of the countries with a developed market economy: the Keynesian and the neo-classical ones (De Vecchi, 2008).

The classical taxation theory underpins the current study by providing the principles of taxation that states that a tax system should have the maxims of equity, determination, convenience and thrift of taxation administration. The principles of thrift of taxation administration and convenience is more relevant for this study as i-tax tax is aimed at sealing loop holes of lost tax

revenues through tax aversion by having a system that nabs tax cheats. The i-tax is also expected to improve convenience in tax payment where tax payer pays tax without many red tapes hindering the process. To this stage the classical theory informs the implementation of i-tax to improve tax revenue collection by ensuring the principle of convenience and thrift in tax administration is observed.

2.2.2 The Theory of Optimal Taxation
The standard theory of optimal taxation posits that a tax system should be chosen to maximize a social welfare function subject to a set of constraints. The literature on optimal taxation typically treats the social planner as a utilitarian: that is, the social welfare function is based on the utilities of individuals in the society. In its most general analyses, this literature uses a social welfare function that is a nonlinear function of individual utilities. Nonlinearity allows for a social planner who prefers, for example, more equal distributions of utility. However, some studies in this literature assume that the social planner cares solely about average utility, implying a social welfare function that is linear in individual utilities (Vlankiw, Weinzierl and Yagan, 2009).

To simplify the problem facing the social planner, it is often assumed that everyone in society has the same preferences over, say, consumption and leisure. Sometimes this homogeneity assumption is taken one step further by assuming the economy is populated by completely identical individuals. The social planner's goal is to choose the tax system that maximizes the representative consumer's welfare, knowing that the consumer will respond to whatever incentives the tax system provides. In some studies of taxation, assuming a representative consumer may be a useful simplification. However, Drawing policy conclusions from a model with a representative consumer can also in some cases lead to trouble (Mankiw et al., 2009).

Optimal tax theory addresses such questions as: Should the government use income or commodity taxes? Within commodity taxes, how should tax rates vary across commodities? How progressive should the tax system be? Optimal tax theory encompasses a range of models that focus on particular aspects of the tax system. These different models share three features. First, each model specifies a set of feasible taxes for the government, such as commodity taxes, and the government's revenue needs. The models typically rule out lumpsum taxes, which would cause no economic distortion. Second, each model specifies how individuals and firms respond

to taxes. That is. Individuals have preferences about goods and leisure; firms have a given technology for producing goods; and individuals and firms interact in a given market structure (often perfect competition). Third, the government has an objective function for evaluating different configurations of taxes. In the simplest models, the government's objective is to minimize the excess burden generated by the tax system while raising a set amount of revenue. The more complicated models balance efficiency considerations with equity concerns. The models that include equity are usually more concerned with vertical equity rather than either horizontal equity or the benefit principle (Gentry, 2003).

The theory of optimal taxation is relevant for the current study on the effect of i-tax on tax buoyancy in Kenya as the theory posits that a tax system should be chosen to maximize a social welfare function subject to a set of constraints. The social welfare function is based on the utilities of individuals in the society. The theory supports the current study in that it recognizes the role of i-tax in reducing tax aversion and improving tax revenue collection so as to maximize the welfare of the citizens through provision of relevant utilities to the populace like projects that improves the livelihood.

2.2.3 Keynesian Taxation Theory

The initiator of the Keynesian taxation theory was John Keynes, who exposed its main principles in his book "The General Theory of Employment, Interest and Money," in which he advocated state interventions in the processes of market economy regulation (Keynes, 1936). According to Keynes, fast economic development must be based on a market expansion and an associated increase in consumption. As a result, state intervention is achieved at the level of effective demand. One of the main assumptions in Keynes's theory is that economic growth is related to monetary savings only in conditions of full-employment (Mankiw et al., 1993). In the contrary case, large amounts of savings hinder economic development as they represent a passive form of income and are not invested in production; as a result the author suggested that surplus savings must be subtracted with the help of taxation. This is why the state must intervene with the purpose of subtracting income savings with the help of taxation in order to finance investments and cover state expenditures. Keynes argued that high level progressive taxation is necessary and that low tax rates lead to reduced state revenues and as a result contributes to economic instability. That is according to Keynes taxes must play the most important role in the system of

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state regulation. High taxes stimulate economic activity; influence the stability of the economy and in the context of the economic system act as integrated flexibility mechanisms (Keynes, 1936).

The Keynesian theory is another branch of taxation theory that provides a base for the current study. The theory shows that the government has a role to play in the modern market economy. The surplus idle savings by the citizens must be subtracted by the government with the help of taxation. The revenue generated is utilized to finance investments and cover state expenditures. Keynes holds that high level progressive taxation is necessary and that low tax rates lead to reduced state revenues and as a result contributes to economic instability. The government through the Keynesian theory has set up the KRA that applies the i-tax to collect enough tax revenues to support its expenditure and stimulate economic growth.

2.2.4 Technology Acceptance Model (TAM)

Davis et al (2003), TAM theorizes that an individual's intention towards using a system is jointly determined by perceived usefulness, the user's subjective probability that using a specific application system will increase his or her job performance'' and perceived ease of use (PEOU), the degree to which the user expects the target system to be free of effort. The effects of external variables (e.g., system design characteristics) on behavioral intention (BI) are mediated by these beliefs. According the PEOU also has a direct effect on PU.In predicting usage; TAM models might be useful within and across organizations for evaluating applications or technologies, or to make comparisons between user groups or applications. However, TAM has limitations in being applied beyond the work place because its fundamental constructs do not fully reflect the variety of user task environment and constraints. Paul and John (2003), suggested that TAM is a useful model but has to be integrated into a broader one which would include variables related to both human and social factors. The theory of planned behavior (TPB) takes these factors into account.

2.4 Empirical Review

There exists large number of studies both globally and locally on tax buoyancy and effect of tax reforms on tax revenue buoyancy. Timsina (2006) carried out a study whose main objectives were to measure the elasticity and buoyancy of tax and to ensure whether or not the tax system in

Nepal is elastic. The study has applied time series regression approach for this empirical measurement. This study reveals that the tax system in Nepal is inelastic (less than unity) in the period 1975-2005 with more than unitary buoyancy coefficients, thus reflecting that the bulk of revenue collection emanates from discretionary changes in the tax policy, rather than from automatic responses.

Maisiba and Atambo (2016) sought to investigate the effect of the electronic tax system on revenue collection efficiency of Kenya Revenue Authority at Uasin Gishu County. The study employed a case study research design of KRA Uasin Gishu County. The key findings were that most respondents agreed that KRA has good electronic tax payment System and that for the KRA officials; most of them are conversant with its use and are trained. However, most tax payers indicated difficulty in using the system and blamed lack of computer knowledge, poor internet and unstable power supply as major reasons. This however does not deter them from paying their taxes and filing them because however hard it is, they do beat deadlines to do so. Conclusions included that Kenya Revenue Authority has the best electronic tax system; most officials at the research area are sufficiently trained and updated about the system and that revenue collection activities including tax payment, registration, returns and filing have improved since the inception of the system. Moreover, most tax payers are still finding it difficult using the electronic system in terms of accessibility, internet connections, lack of computer knowledge and poor power supply systems.

Osoro (1993) examined the revenue productivity implications of tax reforms in Tanzania for the period 1979 to 1989. In the study, the tax buoyancy was estimated using double log form equation and tax revenue elasticity using the proportional adjustment method. The result gave an overall elasticity of 0.76 and a buoyancy of 1.06. The study concluded that tax reforms in Tanzania had failed to raise tax revenues. These results were attributed to the government granting numerous tax exemptions and poor tax administration within the sample period. In another study, Osoro (1995) estimated the individual tax elasticity and that of the overall tax system from 1970-1980. He established the elasticity of the overall tax system declined from 0.85 in 1970 to 0.782 in 1980. Income tax and Sales tax, which were elastic in the 1970s, became inelastic in the 1980s. Import duty, which was inelastic in the 1970s, became elastic in 1980s. He

attributed these changes to reduction in import duty rates and a rise in imports, rapid changes in the tax base, stemming from steep exchange rate depreciation.

According to study by Ariyo (1997) who evaluated the productivity of the Nigerian tax system for the period 1970-1990 using the double log form and the proportional adjustment methods. His results revealed an overall satisfactory tax productivity level but wide variations in the level of tax revenue by various tax sources attributable to the laxity in administration of non-oil tax sources during the oil boom periods. Chipeta (1998) studied the effects of tax reforms on tax yields in Malawi for the period 1970 to 1994. The results indicated buoyancy of 0.95 and an elasticity of 0.6 and concluded that the tax bases had grown less rapidly than GDP. A study by Kusi (1998) on tax reform and revenue productivity of Ghana for the period 1970 to 1993, using the Proportional Adjustment method established a pre-reform buoyancy of 0.72 and elasticity of 0.71 for the period 1970 to 1982. The period after reform, 1983 to 1993, showed increased buoyancy of 1.29 and elasticity of 1.22. The low buoyancy and elasticity during the pre-reform period was attributed to smuggling, unrecorded trade, tax evasion and laxity in tax collection. The study concluded that the reforms had contributed significantly to tax revenue productivity from 1983 to 1993.

Study by Ayoki et. al (2005) researched on the tax reforms and domestic revenue mobilization in Uganda by using the proportional adjustment method. Their findings revealed that, reforms had a positive impact on direct taxes as tax-to-income elasticity index grew from 0.706 to 1.082 after the reforms whiles indirect taxes also moved from 1.037 to 1.306. They concluded that the reform was necessary to the economy but there was more room for improvement. Brafu-Insaidoo and Obeng (2008) studied the effect of import liberalization on Tariff revenue in Ghana for the period 1966 to 2003, using the Singer (1968) approach to estimate the duty buoyancy and elasticity. The result indicated overall buoyancy of 0.556 and elasticity of 0.282. The period before import liberalization (1965-1982), gave buoyancy of 0.33 and elasticity of 0.814, and for the period after the import liberalization (1983-2003), buoyancy was 0.313 and elasticity was 0.049. From the result, duty buoyancy outweighed duty elasticity for the entire study period, meaning that discretionary tax measures (DTMs) have improved tariff revenue mobilization over the period.

Study by Omondi (2013) was carried to evaluate VAT reforms that have been undertaken onVAT since its introduction in 1990 aimed at boosting its revenue generating capacity. The researcher hoped to identify areas that need further reforms to increase VAT compliance rate which has relatively low over the years. The study established that Kenya's VAT has been subjected to a number of reforms since its introduction for instance rationalization of VAT rates and lowering of VAT ceiling to minimize tax evasion and to increase competitiveness of local products together with other reforms discussed in this paper. The study also found Kenya's VAT to be inelastic and non-buoyant, with elasticity and buoyancy coefficients being less than unity. This confirmed that the VAT as a source of revenue is grossly underperforming and there is need for further reforms on VAT to boost its revenue productivity.

Muriithi and Moyi (2003) used the concepts of elasticity and buoyancy to determine whether tax reforms in Kenya generated sufficient revenue. The period of study was split into: pre reform periods (1973–1985) and the post-reform period (1986–1999). The pre reform period registered the lowest elasticity indexes of 0.276 for the whole tax structure compared with other periods and a buoyancy of 1.023. The post reform period recorded buoyancy and elasticity of 1.661 and 1.495, respectively. The analysis suggests that reforms had a positive impact on the overall tax structure and on the individual tax handles. In fact, the elasticity of indirect taxes was low and that of direct taxes was high, particularly after the reforms. Despite this positive impact, they argued that despite VAT being predominant in the tax structure, reforms failed to make VAT responsive to changes in income.

Ole (1975) estimated income elasticity of tax structure in Kenya for the period 1962/63 to 1972/73. In the study, tax revenue was regressed on income without adjusting for unusual observations. The results showed that the tax structure was income inelastic (0.81) for the period studied. The results also implied that Kenya's tax structure was not buoyant and therefore the country would require foreign assistance to close the budget deficit. Wawire (1991) assessed the performance of Kenya's tax system from 1958 to 1989 by analyzing the tax capacity factors that were considered to be the main determinants of various tax ratios. Through a regression analysis, the study concluded that increases in the volume of international trade, mining, quarrying,

manufacturing, building and construction does increase the tax ratio given by tax/GDP. The result of the study showed an inverse relationship with respect to share of forestry, agriculture and fishing sectors of the economy. Wang'ombe (1999) analyzed the revenue productivity and some administrative factors of the Kenyan tax system for the period 1989–1998. The result of this study came up with buoyancy estimates of the total tax system as 1.26 while elasticity was 1.27. The study thus concluded that the tax system in general was both elastic and buoyant implying that tax reforms had greatly improved productivity. Discretionary tax measures had a very small effect on tax productivity implying improved efficiency. Using total GDP, Wawire (2000) estimated the tax buoyancy and income-elasticity of Kenya's tax system. Tax revenues from various sources were regressed on their tax bases. The study concluded that the tax system had failed to raise necessary revenues. However, the shortcomings of the study were that it never considered other important determinants of tax revenue, for instance the unusual circumstances that could have affected tax

Karingi et al (2004a) found out that the compliance for VAT and income taxes in Kenya are 55 and 35 percent, respectively. Consequently, (KIPPRA, 2005) argued that this means that it is possible to reduce the tax burden of those currently paying taxes by raising the compliance rate. In other words, it is possible to reduce the VAT rate from the current 16 percent without the government facing any revenue shortfalls by raising the level of compliance. It is evident that the low compliance is mainly an administrative issue related to KRA. The taxpayers face significant compliance costs and these interfere with their willingness to pay taxes. The administrative structure of KRA in itself contributes to this high cost. The tax-by-tax organization of KRA needs a revisit. The international best practice is to have revenue administration that is organized on a functional basis-like audit as one function and not by type of tax. It is, however, worthwhile to note that KRA has now restructured itself to a functional-based organizational structure.

Imam and Jacobs (2007) estimated the impact of corruption on the revenue-generating capacity of different tax categories in the Middle East. They found that the low revenue collection as a share of GDP there compared to other middle-income regions is due in part to corruption, and certain taxes are more affected than others. Taxes that require frequent interaction between the

tax authority and individuals, such as taxes on international trade, seem to be more affected by corruption than most other types of taxation. Kubatova and Rihova (2008) studied the factors affecting revenue from corporate tax. They verified the hypothesis that the statutory tax rate and profitability of the corporate sector arc not the sole and most important factors affecting the amount of revenues collected from corporate tax. The method used is panel regression analysis. The regression equations that included only the statutory rate of tax and size / profitability of the corporate sector showed low values of the coefficient of determination. One can thus presume that these factors are not the sole and most significant factors influencing revenues from corporate taxes. Other factors from which the influence on revenues from corporate taxes was shown were tax evasion. Another factor included into the "tax evasion" category is debt financing of corporations. The regression analysis also showed that also the degree of incorporation has a statistically significant impact on revenues from corporate tax. The regression analysis also showed that the cyclically of economic growth has a statistically significant impact on revenues from corporate tax.

2.5 Conceptual Framework

Magenta and Magenta (2003) and Smith (2004), define a conceptual framework a hypothesized model identifying the model under study and the relationship between the dependent and independent variables. The conceptual framework is a research tool intended to assist a researcher to develop awareness and understanding of the variables under scrutiny. For the purpose of this research, a conceptual framework had been developed showing the relationship between the independent and dependent variables.

2.4 Conceptual framework

| Gross Domestic Product |
| • GDP |

Tax buoyancy

| i-tax |
| • Dummy variable |

Independent variable   **Dependent variable**
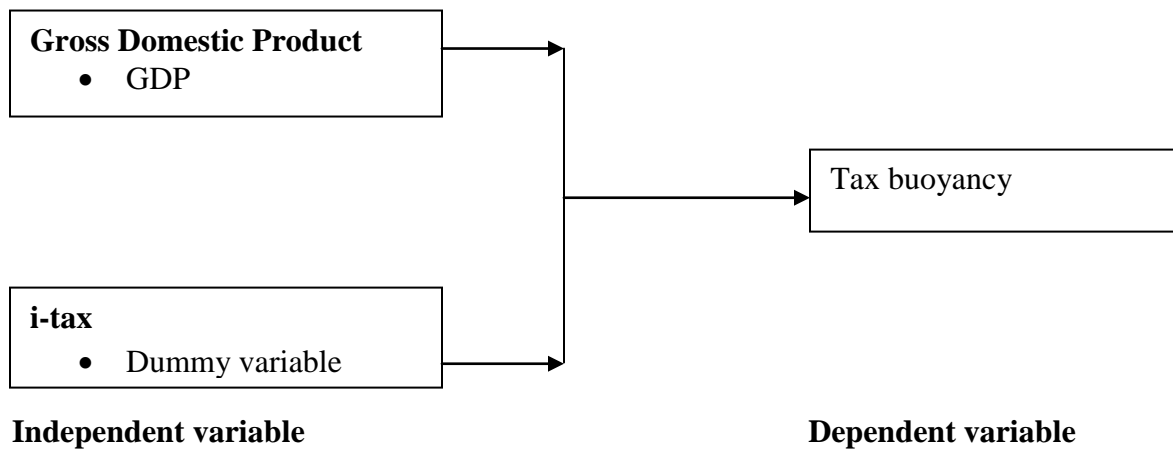
Source: Author (2018)

Figure 2.2 Conceptual Framework

2.6 Summary of literature review

The literature reviewed clearly confirms that a number of studies have been conducted on the tax system and tax reforms in Kenya (Karingi et al. 2005; Wawire, 2011; Mwakalobo, 2009; Moyi and Ronge, 2006; Nada and William, 2009; and Murithi and Moyi, 2003). All these studies have attempted to establish the contribution of tax reforms to revenue productivity in Kenya. In this study we put emphasis specifically on the i-tax reform process from the year 2006 before i-tax was introduced to the year 2016, which is a period long enough to give a clear picture of the effect of this i-tax reform process on revenue productivity in Kenya. The study therefore seeks to Bridge the gap by attempting to find out the whether the i-tax reforms efforts have enhanced buoyancy of the tax system in Kenya during the period of our study. The study will use buoyancy estimates to report revenue productivity. This study will shed light on whether the i-tax reform process in Kenya can effectively raise more revenue to handle the fiscal challenges imposed by increasing budget deficit.

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CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the study design, and the procedure that was used to carry out the study; the study area, the target population the sample and sampling procedure, data collection instruments and data analysis and presentation methods.

3.2 Research Design

This study will employ descriptive survey design and correlation research design to establish the effect of adoption of i-tax on tax buoyancy in Kenyan tax system. The descriptive study seeks to obtain information that describes phenomena by asking individuals about their perception, attitudes, behaviour or values, (Mugenda and Mugenda, 2003). Moreover, descriptive design is concerned with finding out who, what, where and how of a phenomenon that exists which is the concern of this study. This design is therefore appropriate as the researcher was in a position to establish the effect of adoption of i-tax on tax buoyancy of tax system in Kenya.

3.4 Data Collection

Secondary sources of data was used in this research work for gathering information. This data was collected for a 10 year period beginning 2007 -2017. The 10 year period is large enough to cater for the variations in yearly revenues collected over the time. The specific data to be collected was for the tax revenue (dependent variable). GDP, dummy variable for i-tax. (idependent variables). Tax revenue data was collected from the Central Bank of Kenya website where the data on the revenue collected per year for the 10 year period under study was sought. GDP values was collected from the Kenya National Bureau of Statistics and the World Bank. The GDP values was for each of the years under study.

3.5 Data Analysis

The collected data will first be checked for completeness and comprehensibility .The data will then be coded and analyzed using the STATA version 14. Both descriptive and inferential statistics was used to analyse data collected. For descriptive statistical analysis, means,

frequencies, percentages and standard deviations was calculated while for inferential statistics; a correlation analysis was conducted to test the relationship between adoption of i-tax and tax revenue collection by calculating Pearson's correlation coefficient at 95% level of significance. Linear regression was used to establish the effect i-tax adoption on tax revenue collection. The results of the regression was interpreted based on the r^2, and the adjusted r^2. Further, the F-statistics was observed and interpreted for significance using the p-value (Sig.). This was the ANOVA table. Then, the coefficients of each of the variables in the model was observed and interpreted for the direction of influence (+ or - effect) as well as for their significance in the model (t or p-values).

Buoyancy of taxation is given by the ratio as follows

$$\text{Buoyancy of taxation} = \frac{Relative\ increase\ in\ tax\ revenue}{Relative\ increase\ in\ tax\ base}$$

There are several technique for determining tax buoyancy for each year and taking the average calculating the growth of tax revenue and base between the average and years. Buoyancy was measured by comparing tax revenues before i-tax and tax revenues after i-tax.

The general formula of calculating tax buoyancy is as follows.

$$Buoyancy\ of\ Taxation = \frac{\%\ \Delta Tax\ Revenue}{\%\Delta Tax\ Base}$$

$$\text{Tax Buoyancy} = \left(\frac{\Delta T}{\Delta Y}\right) x \left(\frac{Y}{T}\right),$$

Where,

T = Total Tax revenue, Y = Income / GDP

ΔT = % Change in tax revenue, ΔY = % Change in GDP

The income tax buoyancy is computed by dividing the percentage change in income tax by the percentage change in GDP/ national income. The formula as follows

Buoyancy of Income Tax $= \dfrac{\% \Delta Icome\ Tax}{\% \Delta GDP/Income}$

It can be expressed as :

Buoyancy of Income Tax $= \dfrac{\Delta T}{\Delta Y}$

Where,

ΔT = Change in personal/ corporate

ΔY = Change in GDP Income

The buoyancy can be decomposed into individual/ corporate buoyancy as :

$$B_{TY} = \left(\frac{T_1}{Y_t}\right) BT_{1Y} + \left(\frac{T_2}{T_1}\right) BT_{2Y} + \cdots \left(\frac{T_n}{T_y}\right) BT_{ny}$$

Where; $\quad T_t = T_1 + T_2 + \cdots + T_{n2}$

The buoyancy of income tax in country is a weighted sum of the

individual tax buoyancy (Sohata.1961).

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSION

4.1 Introduction

The chapter presents data collected from secondary sources to meet the objective of the study which is to establish the establish the effect of i-tax adoption on buoyancy of tax revenues in Kenyan tax system.

4.2 Descriptive statistics

The study made use of annual revenue performance of Kenya Revenue Authority for the event window consisting of years before and after introduction of itax in kenya . The event study methodology was used to assess if there was any revenue reaction to the implementation of itax. To analyze the revenue reaction to implementation of itax, the study computed the average Revenue Return Variability (RRV) which generally shows how variable (fluctuations in returns) the returns were before and after implementation of introduction of the Itax.

4.2.1 Revenue Returns Viability

The study sought to establish the variability of the revenue return following the implementation

of itax thus determine the revenue reaction.

The formula for measuring this was **RRV**$= \dfrac{AR^2}{VAR}\,it$

RRVit = Revenue Returns Variability of revenue i in time t.

AR2 it =Abnormal Return on revenue i at time t.

V (AR)=Variance of Abnormal Return during the implementation period

Abnormal return =Rit-ERit , where Rit=actual return i at time t; ERit= Expected Return on security i at time t.

Table 4.1 :Average Return Viability

	Mean(billions)	**Std. Deviation(Millions)**
Before Itax	393,608,	140,641
After Itax	810,494	105,682.9

Source: Author, 2018

From the findings, the highest mean score according to revenue performance report for KRA's variability of the revenue return after itax implementation was 810,494 billion, while the variability of the revenue return before itax implementation was 393,608 billion. In addition, the standard deviation depicts a high variation in the variability of the revenue return before, during and after itax implementation. This implies that itax implementation led to an increase in the variability of the revenue return for the periods under study.

4.3 Relationship between Revenue Collection before Itax Implementation and Revenue Collected after the Itax Implementation

The study also tested the relationship between revenue collection before itax implementation and revenue collected after the itax implementation. The findings are as presented below

Table 4.2 Paired sample statistics

		Mean (Millions)	**N**	**Std Deviation**
Pair 1	2007 Revenue Performance in billions 2014 Revenue Performance in billions	393608	7	140671
Pair 2	2015 Revenue Performance in billions 2017 Revenue Performance in billions	810493	3	105682

Table 4.3 Paired sample correlations

	N	Corelation	Sig.
Pair 2007 Revenue Performance in billions & 2014 2 Revenue Performance in billions	7	0.915	0.0259
Pair 2015 Revenue Performance in billions & 2017 Revenue 2 Performance in billions	3	0.945	0.0159

As per the findings, the parametric Pearson correlation or r' value is significant in 2007 & 2015 at .915 and the p-value (Sig) for the correlational coefficient is less than p < .05 and significant. In 2015 and 2017 the Pearson correlation or _r' value is significant at .945 and the p-value (Sig) for the correlational coefficient is less than p < .05 and significant.

Table 4.4 Paired Sampled

	Paied		differences		t	df	Sig. (2- tailed)
	Mean	Std. Deviation	95% Confidence Interval of the Difference				
			Lower Upper	bound Bound			
Pair 2007 Revenue Performance in 1 billions & 2015 Revenue Performance in billions	393,608 810,493	140,671 105,682	65.032	6.429	4.272	2	0.015
Pair 2015 Revenue Performance in 2 billions & 2017 Revenue Performance in billions			137.667	121.385	.238	2	0.134

There is a significant relationship between 2007 Revenue Performance in billions & 2015 Revenue Performance in billions; 2015 Revenue Performance in billions & 2017 Revenue Performance in billions (M = 393,608; M = 810,493). However their respective standard deviations are 140,671 and 137.667 are very far apart statistically. Further with a 95% confidence interval the t-test statistic was

4.272 and .2338 respectively with 2 degrees of freedom and associated P values = 0.015 and .0134 respectively implying that there is a relationship.

4.4 Boyouncy Estimates

The used the Augmented Dickey Fuller (ADF) tests to conduct unit root tests. The variables were stationary either at level or after the first difference .Co-integration analysis was done through estimation of Engel-Granger co-integrating relationships. The ADF unit root tests were performed on the regression residuals for this purpose After performing unit root and co-integration tests, the estimation of buoyancy rates were performed . The t-statistic was used to test the hypothesis that a coefficient was equal to zero. The method used was to observe its estimated value. If the computed t-statistic for a coefficient was greater than 1.96 or smaller than -1.96, taxation constitutes a consumption based tax. If, on the other hand, the computed t-statistic was smaller than 1.96 or greater than -1.96 the null hypothesis was accepted (Koutsoyiannis, 1988).

Table 4.5 Bouyancy of taxation

	tax base			Income base		
	Buoyancy estimates	t- statistic	Adjusted R^2	Buoyancy estimates	t- statistic	Adjusted R^2
Import	0.09857	1.94584	0.3267	2.3598	10.32658	0.842365
Exercise Duty	2.1678	6.32678	0.2497	1.3298	9.3568	0.69452
Income tax	0.2659	5.26589	0.2158	3.21558	14.3265	0.79458
PAYE	0.7289	3.26548	0.3265	0.16548	3.26554	0. 7825
Other income tax	0.25685	4.33884	0.2487			
VAT	0.548976	7.36978	0.4259	2.3697	8.13862	0.5468
Local VAT	0.5487	2.36874	0.2458			
Import VAT	0.3898	1.38979	0.36987	3.1258	7.1348	0.6987
Total tax revenue	3.22	12.3598	0.7468			

The F-statistic was used to test the hypothesis that all of the slope coefficients (excluding the constant) in the estimated tax equations were zero. The p-values for the F-statistics were zero, which led to the rejection of the null hypothesis that all slope coefficients were equal to zero. This meant that the corresponding adjusted Rsquared statistics were different from zero. Therefore, the effect of all the independent variables on the tax revenue for each tax equation was jointly different from zero. The results presented in Table 4.5 indicate that the buoyancy for Kenya's overall tax system is 3.22. On this basis, it can be argued that a 1 percentage point growth in real GDP spurred a more than 1 proportionate total increase in tax revenue. Thus, an increasing proportion of incremental income was transferred to the government in the form of tax revenues, meaning that the tax structure in Kenya was buoyant. Buoyancy for import duties is low at 0.099. The low tax to base buoyancy is an indication of loopholes in the efforts to improve

the tax imposition and implementation. For excise duty, the tax to base buoyancy is significantly higher than the base to income buoyancy. Thus, there is high revenue collection. Both coefficients are statistically significant. PAYE and other income tax buoyancy coefficients are statistically significant but very low, contributing to low buoyancy for the total income tax. Base to income buoyancy coefficients are significantly high and statistically significant. Both local and import VAT have very low buoyancy rate and hence correspondingly low buoyancy for total VAT, but statistically significant. With reference to GDP base, the broad VAT base can be attributed to extension of VAT to electricity and petroleum products. These items constitute the basic input to all production and distribution network in the economy. The low tax to base buoyancy is an indication of inefficiency in tax administration, low tax compliance and tax evasion. Generally, individual tax bases responded favorably to changes in income. Unfortunately, the growth in tax revenue lagged behind the growth in individual bases. This further dampens the responsiveness of tax revenue to changes in Kenya's GDP. The overall tax buoyancy for the Kenyan economy is a great improvement from the conclusion reached by Ole in 1975 that the tax structure was not buoyant and that the country badly needed foreign assistance. Thus, the conclusions of buoyancy from this current study could be attributed to the many reforms that have been carried out by the Kenyan authorities, over time.

CHAPTER FIVE
SUMMARY RECOMMENDATIONS AND CONCLUSIONS

5.1 Summary of findings

The study found overall tax buoyancy of 3.22. Tax to base buoyancy of imports was lowest with negative 0.099 and excise duty showing the highest buoyancy. Base to income buoyancy for all the tax revenues was greater than unity, except the base to income buoyancy for excise duty which had relatively low buoyancy. This shows that all tax bases have grown more than the GDP. For the tax system to mitigate the dangers of perpetual fiscal imbalances, it is expected that the structure would ensure tax revenue grew faster than national income as required by the growth in expenditure. Tax policy is expected to ensure that every individual tax is designed to respond to national income changes, and that predominant taxes in the revenue are those with high buoyancy with respect to national income or proxy bases. The study established the existence of a buoyant overall tax structure, as estimated buoyancy is greater than unity, meaning the government receives an increasing share of the rising GDP as tax revenue. The tax to base buoyancy estimate for excise duty was greater than unity suggesting that excise duty was responding positively to changes in private consumption. However, the base to income buoyancy was very low. It is possible that excise duties were affected negatively by other government policies that influence private consumption such as trade taxes and exchange rates, among others. Tax to base buoyancy estimates of all other taxes were less than unity, implying that they grew less than their respective bases. Import duty had the lowest and negative buoyancy, an indication for loss of revenue from this source. The base to income buoyancy estimates for other taxes were greater than unity showing that the bases respondent well to changes in GDP.

5.2 Conclusion

The low tax to base buoyancies suggest laxity and deficiencies in tax administration. As the economy changes, there should be constant review of the tax structure to improve on shortcomings in the administration of tax system. Taxes are crucial for mobilising revenue to fund public services, infrastructure and other development and poverty reduction goals. Taxes are also crucial ―for building the accountability of states to their citizens, and reduce inequality by redistributing wealth‖. Tax administration and law enforcement institutions in Africa often suffer from high levels of corruption, making the collection and management of public resources very challenging. In fact, according to experts, weak and often corrupt revenue administration remains a fundamental barrier to effective and fair taxation and to building trust between government and citizens in many countries.

5.3 Recommendations

Based on the findings and the analysis We recommend that tax evasion magnitude, composition, growth and determinants be estimated and handled to help minimize noncompliance as this effectively defrauds the government of legally due tax revenues, thereby reducing the government's ability to provide public services, while increasing the nation's debt burden. Although the overall tax seemed to respond well to changes in national income, individual taxes were not responding positively to changes in their respective bases. Kenya Revenue Authority should work on enhancing tax collection strategies by improving public confidence and trust. Tax authorities should improve tax information system to enhance the evaluation of its performance and facilitate adequate macroeconomic planning and implementation.

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APPENDICES

APPENDIX I: LETTER OF INTRODUCTION

Dear Sir/Madam,

Re: To whom it may concern

I am a student at the University of Nairobi pursuing a postgraduate course in masters of Business Admnistration(FinanceOption). I am expected to undertake a research on investigating the **EFFECT OF I-TAX ADOPTION ON THE BUOYANCY OF TAX REVENUES IN KENYAN TAX SYSTEM**. Your timely assistance and co-operation is required to enable me complete the exercise.

This information was strictly used for the intended purpose and was treated with utmost confidentiality.

 Thank you in advance.

 Yours faithfully,

Nancy Kinyua