IMPACT OF TAX AMNESTY ON TAX REVENUES IN KENYA

BY

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DECLARATION

This research paper is my original work and has not been presented for a degree in any other University or institution of higher learning.

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DEDICATION

This research paper is dedicated to my wife Selly Saidi, son Edwin and mother Phanice Kwatemba for their love, support patience during my long absence from home and encouragement during the entire duration of my studies.

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LIST OF ABBREVIATIONS

AR   Abnormal Returns

CAR   Cumulative Abnormal Returns collection.

GAO   General Accounts Office

GDP   Gross Domestic Product

KNBS   Kenya National Bureau of Statistics

KRA   Kenya Revenue Authority

KRA   Kenya Revenue Authority

NAS   National Academy of Standards

SSA   Sub Saharan Africa

UoN   University of Nairobi

USD   United States Dollar

VAT   Value Added Tax

OPERATIONAL DEFINITION OF TERMS

Tax Amnestyis the limited time opportunity given to taxpayers to pay outstanding taxes in turn they get forgiveness for previous tax liability.

Correlation is the degree of statistical degree and type of relationship between any two or more time series over a period of time.

Economy is the wholesystem of producers, distributors and consumers of commodities in a national community.

Government expenditure is money that a government spends.

Gross domestic product (GDP) is the monetary worth of all the finished goods and services produced within a country's boundaries in a particular time period.

ABSTRACT

Tax amnesties have been conducted by both developed and developing countries in their fiscal policy. There is no empirical evidence regarding the impact of tax amnesty on tax revenue despite repeated tax amnesties. The study sought to investigate the impact of tax amnesty on tax revenues in Kenya. The study mainly examined the role played by an amnesty on tax compliance.

The study used time series methodology in estimating the impact of tax amnesty and other control variables on tax revenue in Kenya. The study carried out pre-estimation tests so as to validate the results. Among the pre-estimation tests carried out are autocorrelation, heteroscedasticity, multicollinearity and normality test. Stationarity of the variables was further investigated using Augmented Dickey Fuller test.

The estimated results revealed overall significance of the explanatory variables in explaining tax revenue in Kenya with a coefficient of determination of 55.57 percent. The findings further revealed that the coefficients of tax amnesty and the first difference of foreign aid to be positive and individually significant at 1 and 5 percent level of significance respectively in influencing tax revenue in Kenya. On the other hand, the coefficient of inflation rate was found to be negative and individually significant at 10 percent level of significance in influencing tax revenue in Kenya.

Based on the study findings, the study recommends adoption of tax amnesty by KRA as one of the ways of raising tax revenue in Kenya. The study further recommends efficient usage of the funds from international donors so as to realize economic growth and development thus leading to more increased tax revenue. Lastly, the study recommends independence of Central Bank of Kenya so as to efficiently address stability in price levels and hence encouraging investment that will lead to increased tax revenue.

CHAPTER ONE

INTRODUCTION

1.0 Background of the Study

Tax revenue remains the most significant source of finance for both developing and developed countries. Numerous developing countries have conducted tax amnesties in their fiscal policy to promote revenue collection. Taxation is the principal source of government revenue for budgetary purposes. For instance, Kenya's tax revenue is 80.4% of total government revenue between 1995 and 2004(KRA, 2015). Non-tax revenue and foreign grants also play a key role to public budget, although their importance are much less given their budget share for the same period is 15.1% and 4.5% respectively.

Tax amnesties have repeatedly been utilized in fiscal program by many developed as well as developed countries including the US, Italy and Argentina. According to Christoph (2003) tax amnesty policy differ from country to country and cover only specific taxes. Tax amnesty remains a controversial tax tool. While some countries have generated large revenues while others have remained unsuccessful (Torger et al,. 2003)

Taxation plays a central role and has been used to raise adequate revenue to fund public expenditure and mobilize revenue ensuring equity and that minimum distortion on economic activities. Kenya has overtime transitioned from low tax burden to a high tax burden country. Given the rising public expenditure, the country requires more tax revenues to maintain public services. Attempts by the government to raise more revenue have been hindered by the poor taxpaying "culture" by Kenyans.

Conversely, the ruling elite are not willing to pay tax while the poor and the middle class are left with almost nothing to tax in addition to resistance to pay taxes. There exist suspicions between the taxpayers the collectors since no one enjoys paying taxes. This mistrust leads to a game theory relationship between tax payers and tax agents, with the latter perceiving the former as criminals who are not willing to pay taxes (KRA, 2004). There is therefore need for the tax agents build trust and confidence by improving their image.

Table1.1: Income Tax Revenue Collection for the periods 1999/2000 to 2008/2009 in millions (Kshs)

Year	Actual Figures	Target Figures
1999/2000	53,556	59,982
2000/2001	56,246	61,874
2001/2002	60,936	65,436
2002/2003	71,214	70,168
2003/2004 - Introduction of amnesty program	82,209	74,644
2004/2005	100,083	83,637

2005/2006	115,806	105,631
2006/2007	124,182	126,203
2007/2008	166,153	151,656
2008/2009	194,544	194,574
TOTAL	**1,024,929**	**993,805**

Source: Kenya Revenue Authority and Statistical Annex Budget Fiscal Year 2008/2009.

The government of Kenya uses several methods to ensure that there is taxpayer compliance. One of the ways used is the announcement of Tax Amnesty. This forms the basis of this research work. Tax amnesty can be defined as a government policy of not to prosecute or penalize taxpayers who reveal previous tax years incorrect information that they failed to reveal during earlier associations with the tax agency (Duhaime, 2007).

Tax amnesty may also be referred as a time opportunity targeting specific taxpayers to declare and pay a specified sum of money in return for forgiveness of previous period outstanding tax liability without fear of prosecution. This expires when the tax authority initiates tax investigation of any previous tax due. There are some cases where legislation may be enacted to extend amnesty and also impose harsh penalties to those eligible for amnesty and fail to take it.

Tax revenue is determined by several factors including demography, attitudes and perceptions, non-compliance opportunity as well as tax structure. According to Kenya Revenue Authority (2005), tax revenue collection shows an improvement as shown by increase in tax collection of 63% and tax ratio to GDP of 20% between 1999/2000 to 2004/2005. The impressive tax revenue collection does not mean Kenya Revenue Authority has exhausted all the compliance requirements to generate more revenue. According to Christian Aid (2005), non-payment of taxes for various reasons represented by tax gap (taxes which are due but not paid) is significant in Kenya. The value of taxes unpaid in Kenya is estimated by KRA to be US $ 1.32 billion which is 50% of regional all revenue.

To promote tax compliance, KRA has deployed a fixed scanner and an X-ray scanner which has a risk-profiling capacity at Kilindini port. In addition, the national tax authority has also operationalized Itax and electronic Tax Registers for income tax and VAT respectively. Thirdly, the authority has been conducting taxpayer education programs and campaigns aimed at promoting tax amnesty. (KRA, 2004).

1.1 Problem Statement

Tax Amnesty has been granted by many states and governments both locally and internationally. Locally, the government proposed a tax amnesty in the financial year 2004/2005 budget. This amnesty covered fines or penalties and interest. Following this announcement the Kenya Revenue Authority (KRA) urged the public to take advantage of the amnesty period. (KRA, 2004).

Good revenue performance is witnessed immediately thanks to the tax amnesty of the financial year 2004/2005. It is estimated that about 10,791 new income tax payers were enrolled during the same period realizing a total of Ksh.2.722 Billion in additional revenue. (KRA, 2005). Over the last decade KRA has always fell short of its revenue target set by the national treasury. For instance in the financial year 2015/2016 the national treasury has set a revenue target of Sh880 billion in the which is 22 per cent higher than the previous year target. This has previously forced the authority to be more aggressive in tax collections for instance introduction of property tax to meet target.

The taxman could, however, find it difficult to get close to the target and therefore tax amnesty policy is an alternative given the high target set by the national treasury.

The extent of the impact of tax amnesty on tax revenue has not well been understood. Though Tax Amnesty has been granted by several governments and states, there is no strong consensus or marked consolidation of facts on the impact of tax amnesty on tax revenue. Therefore the study is necessary in order ascertain the impact of tax amnesty on tax revenue and if it leads to increased tax compliance in Kenya.

1.2 Research Questions

a) What is the effect of tax amnesty on tax revenue?
b) Which policies encourage increase in tax revenue collection?

1.3 Study Objectives

The following specific objectives guided the study:

a) To establish the effect of tax amnesty on tax collection.

b) To draw policy recommendations to increase tax revenue.

1.4 Justification of the study

This study will enable the government to understand the impact of tax amnesty on tax revenue due to increased compliance hence the government will make informed decisions before granting future tax amnesties. The study will also enable the government in planning strict enforcement measures which will accompany the granted tax amnesty in order to achieve compliance in the future. The study will help the government to collect delinquent taxes by identifying non-filers who paid delinquent tax liabilities and are now on government tax files.

The study will enable the taxpayer to understand what tax amnesty is all about and help him/her to straighten his/her records of tax returns with the government by declaring his/her previous tax liability without feeling guilt. The study will help the taxpayer identify the excellent opportunities for obtaining public awareness of the importance of filing and paying taxes on time and for the future consequences if taxes are not paid.

This study will also increase the knowledge of the researcher and academicians in the area of the research. It will serve as a guideline to academicians and other researchers in carrying out similar research.

This study contributes to literature by investigating the impact of tax amnesty on tax revenue in Kenya, shows how tax amnesty affects tax revenue using more updated data (1980-2015)

and suggest policy measures to increase tax revenue. The understanding of this phenomenon is important to policy makers, researchers and students.

1.5 The Organization of the Study

The rest of the paper is organized as follows: Chapter two presents a review of selected literature on tax revenue and tax amnesty. The method of the estimation has also been articulated in Chapter three. Chapter four presents the empirical results while chapter five presents the summary and conclusions of the study, policy implications and recommendations, limitations of the study and recommendation of areas for future research.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

In this chapter we present and examine the existing facts and evidence of the key literature related to tax amnesty both locally and globally. Tax amnesty being a global concept ithas limited available knowledge and information regarding Kenya.Tax amnesties are generally disputed in the tax compliance literature. A tax amnesty may generate a rise in tax collection and lower tax administration costs (Alm, 1998) in the short run. Furthermore, it may trigger previous tax evaders to be honest.

2.1.1 Audits

Compliance of tax is crucial and thus audit is required for frequent monitoring and evaluation. Such audit includes but not limited to all costs to the tax body as well as cost involving the taxpayers. With what tax does to the income of the payee as well as the corruption that are involved in tax collection, auditing tax is not very much welcomed by both these parties as it may expose them. For instance, in almost every calendar year, cases of non compliance among the tax payers have been on the rise. And to counter this, most tax audit have used law to access taxpayers data both on income and various businesses that they run (Alm, Blackwell and McKee, 2004). Empirical evidence based on actual reporting behavior; however, suggest some indication of increased compliance among those previously audited (Long and Schwartz, 1987)

2.1.2 Reduction of tax compliance Costs

According to Sandford (1995) compliance of tax involves costs that the tax payer do incure during the process of meeting the requirements of revenue authority. These costs can be reduced by simplifying tax forms and instructions, providing publications and telephone-answering services, offering personal help to assist in filling and to resolve problems taxpayers may encounter in dealing with revenue authorities (US General Accounts Office, 1987). As these compliance costs are reduced, taxpayers are encouraged to comply with the laid down tax regulations.

2.1 Theoretical literature

2.2.1 Fiscal Psychology

This theory gives the effects of tax payer's perception, demographics as well as attitudes on tax compliance. Various demographic factors (e.g., age, gender), perceptions of the legality or morality of evasion, effects of interpersonal sanctions, and perceptions of peer compliance and fairness of the tax laws are important factors in the compliance decision. (Jackson*et,.al*1986) If sanctions are probable enough, and the costs severe enough to outweigh the rewards of an act, the act will not be performed.

2.2.2 Agency Theory

According to this theory, both the tax administrators and policy makers should not assume that any given agent to collect tax on behave of the state will do as expected. By so doing, it doesn't imply that companies will never have a corporate responsibility (Tucker and Henkel, 1992). For instance voluntary fire departments, religious organizations, clubs (Tucker & Henkel, 1992).

2.2.3 Neoclassical Theory

Tax amnesties have also been discussed in length by neoclassical economist. For instance Alm and Beck (1993) in their argument about the role of Amnesty did reveal that it can improve compliance among the tax payers leading to improvement in tax collection. They however warned that if it is overdone, then it could have a negative long term effect.

2.2.4 Factors Determining Tax Compliance

Historically, researchers in the field of tax have studied reasons why there are some people who pay taxes and others who fail to pay taxes. Most studies including (Boylan and Sprinkle 2001) identified the following factors that are likely to motivate tax compliance.

2.2.5 Demographic factors

Several studies have indicated that women are more ethical in tax compliance attitudes compared to men (Smith, 1992). This difference is observed across studies that make use of experimental, archival, and survey data. Survey data show that tax systems are considered fairer by women than men. Additionally, women think that they more likely to get caught are

less likely to have underreported their income, and think that the penalty for noncompliance they would receive would be more severe (Kinsey, 1992).

2.2.6 Deterrence measures

Deterrence models generally predict compliance patterns based solely on the subjective probability and utility of outcomes associated with alternative actions (John Scholz, 1991). The most commonly used deterrence measures are audits and penalties.

This theory is concerned with the effects of sanctions on criminal behavior. The basic assumption is that people are rational. That is they choose opportunities that maximize their return and minimize their costs. In case the costs exceed the benefits, the opportunity is not performed. This theory was used to examine various criminal behavior which include tax evasion and tax cheating.

2.2.7 Social Norms

Institutions and society's attitude towards institutions are the key determinants of social norms and compliance. Webley et al., (1991) found that people with negative attitude towards tax policy complied less with taxes. Alm et al., (1993) demonstrated that by ensuring that public participation, government will promote tax compliance. He also found that promoting social expression towards unwillingness and low tolerance to tax evasion.

2.2.8 Fairness in the Tax System

Spicer and Becker, (1980) found that if fiscal policy if perceived to be unequal may affect compliance. Compliance increases (reduces) among citizens of a country if they are aware that their tax rate is greater (lesser) than that of others.

2.2.9 Fiscal Institutions

Use of tax revenues in the decision process affects compliance is as found out by Alm et al., (1993). Individuals may pay more taxes by voting on the use of their resources as opposed to imposed taxes. The more the decisive the vote is the higher the compliance. But in cases where the vote is kept secret, compliance is lowered due to imposition of unpopular policies. The assessment of tax revenue performance of a country is based on their development level and structure of the economy (Chelliah, 1971).

2.3 Empirical Literature review

Aamir et., al 2011 identified direct and indirect taxes as the two major types while comparing the tax regime for India and Pakistan from 1999 - 2000 to 2008 – 2009. The study noted that Pakistan generates more tax revenue through indirect taxes whereas India generates more tax from direct taxes. The study concludes that fiscal policies will be very different for the two countries. In addition, the more the indirect taxes in country, the more the gap between poor and the rich increase leading to labour class exploitation.

Tax revenue tends be significantly responsive to changes in exchange rate, income level and inflation rate. A unit percent increase in income level will leads to a 0.63% increase in tax revenue in the in the first year and 0.33% in the second year. These were the findings of Muibi and Sinbo (2013) for Nigeria economy from 1970 to 2011 using the error correction mechanism. The level of economic activity and macroeconomic instability are the main drivers of tax buoyancy and tax effort in Nigeria (Muibi &Sinbo 2013)

While investigating the determinants of tax revenuefor 39 Sub-Saharan African countries between 1980-2005, Addison and Levin (2011) concludedthat introduction of VAT has a positive significantimpact on the total tax-GDP ratio. Further, overall ratio of tax to GDP is higher in more open and less agricultural dependent economieswhile VAT and a peaceful environment have a significant positive impact (Addison & Levin, 2011).

While investigating the determinants of tax revenue in developing countries, Gupta (2007) established that structural factors including GDP per capita, share of agriculture in GDP, trade openness and foreign aid were significant in revenue performance in an economy. In addition, degree of corruption, share of direct/ indirect taxes, and political stability also affect tax revenue (Gupta, 2007). Consequently, the level of corruption and economic policies affect tax revenue. This was the finding by study by Ghura (1998) on tax revenue in Sub-Saharan Africa. The study confirms that a country`s tax base influence tax revenue while tax revenue ratio rises with income.

Torgler and Schaltegger (2005), using a study of tax amnesty programs in Switzerland and Costa Rica, analyze the relationship between amnesty revenues and citizens ability to vote in favor(or not) of introducing a tax amnesty program. They found that amnesty revenues only increases after voting provides citizen with an opportunity to express their opinions on the amnesty policy.

Provide empirical estimates of the revenue effects of various tax amnesty programs offered in India from 1965 to 1991. From their empirical analysis, they find that; the early tax amnesty programs (up to 1980) were arguably unanticipated by taxpayers; however, apart from the 1975 program, they all produced negative revenue gains, once the indirect effects (compliance, filing behaviour, waiving of fines, and penalties.) were taken into account; post-

1980 programs had all been widely anticipated and therefore resulted in a negative overall revenue effect; and the revenue impact of tax amnesty programs declines over time.

While investigating the influence of tax amnesty on post amnesty tax compliance, Alm et al., (1990) revealed that a tax amnesty led to a proportionate reduction in the post-amnesty tax compliance. Further, their study revealed that a post-amnesty enforcement was crucial to overcome obstacles in compliance.

Alm and Beck (1990, 1991) in their theoretically analysis of effect of tax amnesties concluded that it may improve compliance and tax collections when majority of the payers view or perceive tax payment as a norm. To them, tax amnesty is better and efficient in short term basis as it boost total collection. They proposed that tax amnesty attracts tax payers who originally were non compliance and keeps them in the system for further collection. Similar study by Fisher, Godderis and Young (1989) in USA, Michigan State revealed that only a small proportion of those who had been given a tax amnesty evaded later.

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2.4 Overview of literature

From the studies reviewed we find out the following; first, the factors that determine tax amnesty include GDP per capita, share of agriculture in GDP, trade openness foreign aid, degree of corruption, share of direct/ indirect taxes, and political stability. Secondly, most studies find that tax amnesties may positively impact tax collections and tax compliance only a few found that tax amnesty had no effect on tax collection in either the short or the long term (Stella, (1991), Laborda and Rodrigo (2003)) or had a negative effect on tax revenue (Alm and Beck (1990), Luitel and Sobel (2007)). Lastly, only one study found that amnesty

revenues only increases after voting provides citizen with an opportunity to express their opinions on the amnesty policy (Torgler and Schaltegger, 2005),

The above findings on tax amnesty and tax revenue are mixed. There exist no common agreements whether tax amnesty has a positive or negative impact on tax revenue specifically for Kenya. This research paper will investigate the impact of tax amnesty on tax revenue in kenya in order to address the gap which has not been addressed by the previous studies.

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CHAPTER THREE

3.0. METHODOLOGY

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3.1 Introduction

This chapter presents theoretical framework, empirical model and specification, definition and measurement of variables, tests to be conducted and lastly data sources.

3.2 Conceptual framework

Different studies included various variables while analyzing the determinants of tax revenue as reviewed in chapter two. For the purpose of our study we include the following variables in our model; tax amnesty, gross domestic product (GDP), inflation rate, trade openness, size of the agricultural sector and foreign aid as below.

Figure 3.1: Relationship among Variables

INDEPENDENT VARIABLE	DEPENDENT VARIABLE
Tax amnesty	Tax Revenue
CONTROL VARIABLES	
1. GDP	
2. Trade Openess	
3. Agriculture ratio to GDP	
4. Inflation rate	
5. Foreign Aid	
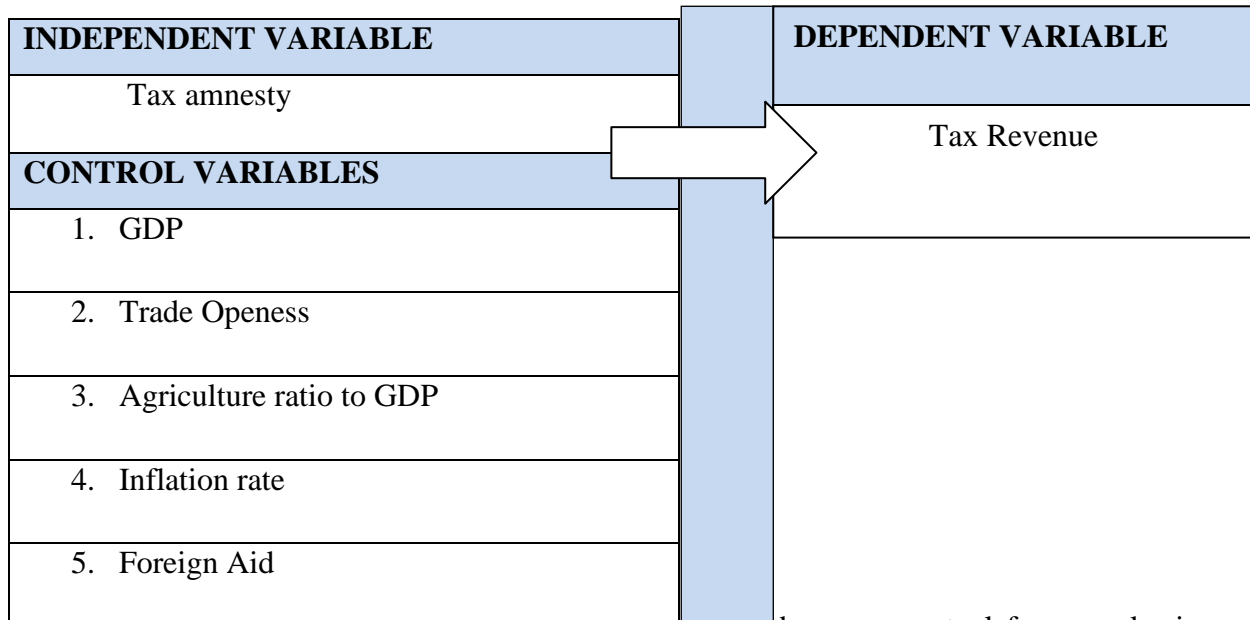
The above conceptual framework gives a depiction on how the variables are related to one another. The variables defined here are the dependent, independent and control variables. An independent variable in this case is the

main variable the study seeks to investigate its influence on the dependent variable. On the other hand, control variables help us identify the exact effect of the independent variable on the dependent variable by holding them constant.

3.3 Estimable model

In developing the tax model for a less developed country like Kenya, it is impossible to include all variables due to unavailability of data and small sample size problem. Therefore, following empirical literatures, this study attempts to empirically investigate the effect of tax amnesty on tax revenue. We include the following variables in our model; tax amnesty, gross domestic product (GDP), inflation rate, trade openness, size of the agricultural sector, foreign aid and Peaceful environment. Therefore we have;

Tax revenue = f(*tax amnesty, GDP, inflation, trade openness, size of the agricultural sector, foreign aid,*)   (i)

Descriptive statistics is used to simply describe what's going on in the data while an inferential analysis is used to make references from the data to more general conditions. We convert equation (i)to a general regression model as:

$$Yt = \beta_{0t} + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \beta_5 X_{5t} + \epsilon_t \qquad (ii)$$

Dependent Variable (Y): increase of tax revenue amounts over the period of research. These will be collected from tax revenue statistical bulletins available at the KRA and KNBS.

Where Y= tax revenue over the period of research;

B_0 = Y intercept/Constant;

X_1 = Tax amnesty-presence of tax amnesty intervention or otherwise

X_2 = Growth in Gross Domestic Product (GDP)

X_3 = Inflation rate

X_4 = Size of the agricultural sector to GDP

X_5 = Foreign aid

$€$ = Error term

The research will cover a period of thirty five years from 1980 to 2015. This is assumed reasonable to demonstrate the effects of tax amnesty on revenue growth fourteen years before the tax amnesty in 2004 and eleven years after the amnesty. Regression analysis is used to evaluate the degree of relationship between amnesties and revenue growth.

3.4 Definition and measurement of variables

Variable	Definition	Measurement	Expected sign	Sources
Tax revenue	This is the income collected by governments through taxation.	Annual (Kenya shillings)	Dependent variable	KRA
Tax amnesty	This is the limited time opportunity given to taxpayers to pay outstanding taxes in turn they get forgiveness for previous tax liability.	Dummy	Positive as suggested by Torgler and Schaltegger (2005)	KRA
Gross domestic product (GDP)	Monetary value of finished goods and services produced within a country's borders in a specific time period	Annually -	Positive as suggested by Islam (1979)	KNBS
Inflation rate	The general level of prices for goods and services.	As a percent	Negative as suggested by Ghura (1998)	KNBS
Size of the agricultural sector to GDP	This is the proportion of agriculture in the GDP	As a percent	Negative as suggested by Ghura (1998)	World Bank Global Development Indicators 2016

Foreign aid	Transfer of capital, goods, or services from a country or international organization for the benefit of the recipient country or its population.	Annually - Kenya shillings (Ksh.)	Positive as suggested by Teera (2003)	World Bank Global Development Indicators 2016

Source: Author's computation

3.5 Tests

3.5.1 Unit Root Testing

To test for stationarity, unit root test Augmented Dickey-Fuller (ADF) Test by Dickey and Fuller (1979) is used. Where some degrees of freedom are lost rendering the test inadequate, there is need to make non-stationary time series data stationary in order to come up with meaningful results before regression is done. If results show existence of unit roots, then we difference the variables to make them stationary.

3.5.2 Diagnostic Tests

OLS estimation technique can only hold if its assumptions are not violated. In this study, multicollinearity test and Ramsey reset test are used and results presented. Diagnostic tests are important in order to find out the stability and statistical soundness of the estimation model, to help check its appropriateness and to avoid spurious estimation results.

CHAPTER FOUR

EMPIRICAL RESULTS

4.1 Introduction

This chapter covers data analysis and findings of the research. The chapter puts emphasis on the impact of tax amnesty on income tax revenues in Kenya. The data covered a period of thirty five years and was analyzed using time series to make valid conclusion on the findings of the study.

4.2 Descriptive statistics

Descriptive statistics of the data series is shown in table 4.1. Descriptive statistics of tax revenue, tax amnesty, inflation rate, trade openness, agriculture ratio to GDP GDP and foreign aid is illustrated. Distribution of a series can be determined by evaluating various statistical measures as shown in table 4.1.

Table 4. 1 Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Year	33	1996	9.67	1980	2012
Taxam	33	0.030	0.17	0	1
Inf	33	12.99	8.95	1.55	45.98
Taxr	33	76899.91	75366.96	7493.49	262270.3
Trade	33	57.06	6.36	47.70	72.85848
Agrics	33	30.07	2.87	23.16	34.22
Gdp	33	1014527	1143792	53910	4254772
Fa	33	54006.09	35438.69	16633	138465

The sample under study had 33 observations. The study had seven variables (one dependent and six independent variables). Range is obtained from the difference between the maximum value and minimum value. The maximum value of tax revenue is KES 262270.3 million while the minimum is KES 7493.49 million giving a range 254777.2. The standard deviation shows the spread of the values from the mean and is important for comparison purposes. The data shows that GDP has a larger spread as compared to other variables. Tax revenue has 75366.96, agriculture ratio to GDP has a standard deviation of 2.87, tax amnesty has 0.17, inflation rate has 8.95, foreign aid has 35438.69, trade openness has 6.36 and GDP growth rate has 2.33.

4.3 Correlation Matrix

Correlation of the variables is examined in the table 4.2. Coefficient of correlation illustrate the relationship among the independent variables.

Table 4.2: Correlation matrix

	taxam	inf	trade	Agrics	gdp	Fa
taxam	1.00					
inf	-0.03	1.00				
trade	0.07	0.43	1.00			
agrics	-0.13	-0.02	0.18	1.00		
gdp	0.04	-0.16	-0.13	-0.60	1.00	
fa	0.07	0.05	-0.16	-0.75	0.68	1.00

Source: Author's computation

From Table 4.2, we observe the relationship existing between independent variables used in this study. There is a positive association between tax amnesty, trade openness, GDP and foreign aid. On the other hand, there is a negative association between tax amnesty and inflation rate and agriculture ratio to GDP. Inflation rate has positive association with trade openness and foreign aid. There is negative relationship between inflation rate, agriculture ratio to GDP and GDP. Multicollinearity would be considered present if the correlation

coefficient was equal to or above 0.8 as it may lead to spurious regression. As indicated in Table 4.2, the study found absence of multicollinearity since all variables had a correlation index of less than 0.8.

4.4 Diagnostic Tests

4.4.1 Heteroscedasticity

Using Breusch-Pagan test results are as shown in table 4.3.

Table 4.3: Test for Heteroscedasticity

Breusch-Pagan or Cook-Weisberg test for heteroscedasticity
Ho: Constant variance
Variables: fitted values of taxr
chi2(1) = 3.98
Prob> chi2 = 0.0460

Source: Author's computation

The results reveal presence of heteroscedasticity since the p-value of 0.0460 is significant which leads to rejection of the null hypothesis. This was corrected by use of robust standard error regression since the cause of heteroscedasticity was unknown.

4.4.2 Autocorrelation

Breusch Godfrey test was used to test for presence of autocorrelation. The results are as shown in table 4.4.

Table 4.4: Serial correlation

Breusch-Godfrey LM test for autocorrelation			
lags(p)	chi2	Df	Prob> chi2
1	2.944	1	0.0862
H_0: no autocorrelation			

Source: Author's computation

The results reveal absence of serial correlation since the p-value of 0.0862 is insignificant which leads to failure to reject the null hypothesis.

4.4.3 Multicollinearity

Presence of multicollinearity was investigated through examining Variance Inflation Factors (VIF). For VIF values greater than 10, multicollinearity is deemed to be present, otherwise not present (Nachtscheim, 2004). The formula for calculating VIF is shown below.

Variance Inflation Factors

$$VIF = \frac{1}{1 - R^2}$$

Where VIF= variance inflation factor

R^2= coefficient of determination

1/VIF= tolerance

The VIF values are shown in table 4.5

Table 4.5: Multicollinearity

Variable	VIF	1/VIF
Fa	2.95	0.338884
Agrics	2.44	0.410521
Gdp	2.13	0.470259
Inf	1.39	0.720488
Trade	1.34	0.747377
Taxam	1.04	0.964955
Mean VIF	1.88	

From table 4.5, it is evident that there is no multicollinearity since all the variables had VIF less than 10. This implies that all variables depicted absence of multicollinearity.

4.4.4 Normality

In testing for normality of the error tem, the study used Shapiro Wilk test. The results are shown in the table 4.6. The null hypothesis in this situation states that the error terms is normally distributed whereas the alternative hypothesis states that the error term is not normally distributed.

Table 4.6: Test for Normality

Variable	Obs	W	V	Z	Prob>z
res	33	0.81962	6.158	3.781	0.00008

The probability value in table 4.6 is significant thus leading to to rejection of the null hypothesis. This therefore implies that the residuals are not normally distributed. To remedy this, the study adopted log linear model.

4.5 Stationary Test

Stationarity means the series has no unit root making it possible for inference testing. Presence of a unit root results to spurious regression which renders inference inapplicable and therefore the model cannot be used in forecasting. The unit root test was done by use of the Augmented Dickey Fuller Test on the individual variables. The test results are as illustrated in table 4.7.

Table 4.7: Test for Stationarity in Levels

Variable	Test statistic	1% critical level	5% critical level	10% critical level
Lntaxr	-0.428	-3.702	-2.980	-2.622
Inf	-3.311	-3.702	-2.980	-2.622
Trade	-3.153	-3.702	-2.980	-2.622

Agrics	-1.502	-3.702	-2.980	-2.622
Gdp	11.595	-3.702	-2.980	-2.622
Fa	-2.271	-3.702	-2.980	-2.622

Table 4.7 illustrates a non-stationary series. This shows presence of at least a unit root. The variables were differenced and the results are as shown in the table 4.8.

Table 4.8: Test for Stationarity (First Difference)

Variables	Test statistic	1% critical level	5% critical level	10% critical level
D1lntaxr	-7.993	-3.709	-2.983	-2.623
D1inf	-6.343	-3.709	-2.983	-2.623
D1trade	-5.832	-3.709	-2.983	-2.623
D1agrics	-3.985	-3.709	-2.983	-2.623
D1gdp	-0.633	-3.709	-2.983	-2.623
D1fa	-9.369	-3.709	-2.983	-2.623

From Table 4.8 it is evident that all variables became stationary after first difference except GDP. This showed that all variables except GDP have one-unit root or are integrated of order 1 that is I (1). GDP was further differenced and the results are as shown in the table 4.9.

Table 4.9: Test for Stationarity (Second Difference)

Variables	Test statistic	1% critical level	5% critical level	10% critical level
D2gdp	-8.843	-3.716	-2.986	-2.624

From Table 4.8 it is evident that GDP became stationary after first difference. This shows

that it is integrated of order 2.

4.6 Regression analysis

Having subjected the variables to diagnostic tests and stationary check, regression was

carried out and the results are illustrated in table 4.10.

Table 4.9: Regression Results

Dependent Variable: Natural log of tax revenue				
Method : OLS				
Sample : 1980 – 2012				
	Coefficient	Robust Standard Error	T	P>t
taxam	0.101*	0.034	2.99	0.006
D1 inf	-0.004***	0.0018	-1.89	0.070
D1 trade	0.0017	0.0026	0.66	0.516
D1 agrics	0.010	0.015	0.65	0.519
D2 gdp	235000000	20100000	0.12	0.908
D1 fa	2300000**	1040000	2.22	0.036
Constant	0.108*	0.018	5.88	0.000
Prob > F = 0.040**				
R-squared = 0.5557				

4.7 Interpretation of the Results

From table 4.13, *, **, *** indicates significance at 1%, 5% and 10% level of significance

respectively. The results reveal that regression performed well in terms overall significance

as shown by the F-statistic (0.040). The coefficient of determination (R-squared) is 0.5557.

This implies that 55.57 % of the variation in tax revenue is explained by the explanatory

variables in the model while the other proportion (44.53%) is explained by other factors not

considered by this study. This low R-squared was contributed by omitted variables as a result

of unavailable data. However, model specification is justified by significant Probability value

of (0.040) which implies that the variables in the model are jointly significant in explaining

tax revenue at 5% level of significance.

The results further reveals that first difference of tax amnesty and first difference of foreign aid are individually important in influencing tax revenue in Kenya. This is because their coefficients are significant at 1 and 5 percent level of significance respectively. In addition, the results reveal that first difference of inflation is individually important in affecting tax revenue in Kenya. This is because its coefficient is significant at 10 percent level of significance.

4.8 Discussion of the Findings

This study explored the significance of tax amnesty and the control variables as suggested by the literature in influencing tax revenue in Kenya. The insignificant variables were not discussed as they do not contribute to any working policy of the study. From the results, if all factors were kept constant, tax revenue in Kenya would be 0.108 million Kenyan shillings. The results revealed that obtaining more tax revenue depends in part on tax amnesty. The results showed that if effects of other explanatory variables in the model are controlled, a one category increase in tax amnesty results to 0.101 category increase in tax revenue. These findings are in line with economic theory since tax amnesty will make tax payers who evade taxes because the penalty is too high to start paying taxes. This means tax amnesty brings many tax payers into the tax net and thus resulting to increased tax revenue. This finding is in agreement with earlier study by Torgler and Schaltegger (2005) who found that tax amnesty had a positive and significant impact on tax revenue of Switzerland and Costa Rica. This finding however contradicts that of Laborda and Rodrigo (2003) who found no significant relationship between tax amnesty and tax revenue of Spain.

The coefficient of the first difference of foreign aid is positive and significant. This implies that holding all other factors constant one unit increase in the first difference of foreign aid results to an increase in tax revenue by 2300000 million shillings. This finding is in line with economic theory since foreign aid if utilized well results to increased business activities

which are good for tax mobilization. For instance foreign aid can be used to increase both soft and hard infrastructure which is good for the economy. This finding is in agreement with earlier study by Teera (2003) who found a positive relationship between foreign aid and tax revenue in Uganda. The results however suggest contrary finding to earlier study by Tanzi (1992) who found an negative relationship between foreign aid and tax revenue among the developing economies.

The coefficient of the first difference of inflation is negative and significant. This coefficient implies that holding all other factors constant, an increase in the first difference of inflation results to a decrease Kenya's tax revenue by 0.004 million shillings. This finding conforms to economic theory since running inflation discourages investment and also increases the cost of doing business in a country. This finding in in agreement with earlier study by Ghura (1998) who found the coefficient of inflation to be negative and significant while investigating determinants of tax revenue in 39 Sub-Saharan Africa using panel data.

CHAPTER FIVE

CONCLUSIONS AND POLICY IMPLICATIONS

5.1 Introduction

This chapter presents a summary of the study and policy recommendation based on the findings of the study. The chapter is comprised of four sections namely, summary and conclusions of the study, policy implications and recommendations, limitations of the study and recommendation of areas for future research.

5.2 Summary and Conclusions

Many governments have frequently embraced tax amnesty in their fiscal operations. Tax amnesty enables economic agents to pay taxes which they had failed to pay with no financial or criminal penalties that are imposed to tax defaulter upon discovery. Tax amnesty is usually accompanied by increased tax administration costs specifically enforcement measures. An amnesty is a controversial tax raising instrument. Proponents of tax amnesty argue that tax defaulters take advantage of the pardon and pay the unpaid taxes thus raising tax revenues. This school of thought also argue that such tax measures encourages economic agents that are not on tax authorities tax net to participate and thus leading to increased tax revenue in the long run. However, those against tax amnesty argue that such tax measure can lead to reduced taxes. This is because it encourages economic agents to participate in tax evasion with hope of taking advantage the next amnesty. This school of thought also argues that tax amnesty can discourage honest tax payers when they realize the special treatment that tax evaders receive. This measure will therefore make their tax compliance to decrease. The government of Kenya has proposed a tax amnesty in the recent past. This amnesty covered fines or penalties and interest. The Kenya Revenue Authority urged the public to take advantage of the amnesty period. However, the extent of the impact of tax amnesty on tax

revenue has not well been understood. This study therefore sought to investigate the impact of tax amnesty on Kenya's tax revenue.

The author made a careful selection of control variables as guided by empirical studies in this line of study. These variables were analyzed using econometric techniques as guided by Gujarati (2004) and other international studies in the field of study. The explanatory variables used in the study were tax amnesty, inflation rate, trade openness, agriculture ratio to GDP, GDP and foreign aid. To achieve the intended objective, pre-estimation tests and stationarity tests were carried out. Augmented Dickey Fuller test was used to test for stationarity of the variables and revealed that all the variables were non stationary at levels. All variables became stationary after first difference except GDP which was became stationary after second difference. Regression was performed on stationary variables and the results revealed overall significance of the explanatory variables in explaining tax revenue. The coefficient of determination showed that 55.57 percent of the variation in tax revenue is explained by explanatory variables in the model.

The findings further revealed that the coefficients of tax amnesty, first difference of foreign aid to be positive and individually significant at 1% and 5% respectively in influencing tax revenue. In addition, the results showed the coefficient of the first difference of inflation rate as negative and statistically significant in influencing tax revenue in Kenya at 10 percent level of significance.

5.3 Policy Implications and Recommendation

The findings of this study have important policy implication for tax revenue productivity in Kenya. The study has revealed presence of short run positive relationship between Kenya's tax revenue, tax amnesty and foreign aid. On the other hand, the study has revealed short run negative relationship between Kenya's tax revenue and inflation rate.

Based on the study findings, the government of Kenya should strengthen the factors that are revealed to positively influence tax revenue. With regard to tax amnesty, government ought to strongly embrace it since it is seen to encourage tax evaders to pay their unpaid taxes and eventually bringing them to KRA's tax net. With regard to foreign aid, government of Kenya need to continue putting in place measures that will ensure funds that come in the country in form foreign aid is utilized well.

Regarding inflation, the government of Kenya should put in place measures to ensure the inflation rate is kept within internationally acceptable levels so as to encourage investment in the country. To achieve this, the government of Kenya should ensure the Central Bank of Kenya is insulated from political pressures in order to execute its mandate of price stability efficiently.

5.4 Limitations of the Study

The major shortcoming of this study is that it failed to incorporate all control variables that influence tax revenue in Kenya. Empirical literature reveal that, corruption, institutional quality, shadow economy influence country's tax revenue but this study failed to incorporate them due to lack of available data on these aspects. The study also used annual data but use of quarterly or semi annually data could be much efficient in establishing the effect of the variables on tax revenue in Kenya.

5.5 Areas for Further Study

Future researchers ought to investigate the effect of omitted variables on tax revenue. For instance, there is need to investigate the effect of corruption, institutional quality, shadow economy on tax economy.

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