REGRESSIVE TAX REFORMS AND ECONOMIC WELFARE IN KENYA

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DECLARATION

This research project paper is my original work and has not been presented for any award in any university.

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This research project has been submitted for examination with my approval as University Supervisor.

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Dr. Moses Muriithi

DEDICATION

To my wife and children who have stood with me the entire period when I was doing the

project

ACKNOWLEDGEMENT

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LIST OF ABBREVIATIONS

ADF   Augumented Dickey-Fuller Test

COMESA   Common Market For Eastern And Southern Africa

FDI   Foreign Direct Investment

GDP   Gross Domestic Product

KNBS   Kenya National Bureau of Statistics

KRA   Kenya Revenue Authority

OECD   Organization For Economic Co-operation and Development

OLS   Ordinary Least Squares

PA   Proportional Adjustment Method

PAYE   Pay As You Earn

PP   phillips- peron Test

TR   Tax Reforms

VAT   Value Added Tax

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ABSTRACT

This study discussed some recent critical literature on value-added tax (VAT) in Kenya relating to its contributions to economic growth rate. The study employed the tools of quantitative empirical analysis technique to evaluate the contribution of VAT for the economic growth rate of Kenya economy. The first objective was to examine the effect of VAT reforms on economic growth rate. The tools of empirical analysis used are multiple regression models as abstractions of the respective sectors considered in the study and also descriptive statistics. The study considered a vector of economic development indicators as dependent variables and regressed each on GDP per capita growth rate. Moreover, in order to make clear decision and summarize the study, the inclusion of all factors that affect GDP were regressed. The fiscal authorities in Kenya introduced series of reforms in the tax system ranging from continual revisions in tax rate to harmonization and instituting new tax reforms that are relatively easy to administer. Despite these measures, the GDP growth rate per capita has not responded to the changes in the reforms of the tax system. This study examined the effect of the tax system in Kenya and its major handles using annual data covering the period between 1983 and 2013. The Singer method of dummy variables was employed in order to make adjustment for the effect of discretionary tax measures. The empirical results indicated that GDP growth per capita were positively related to increase in VAT revenue collected and the regressive tax reforms that were made during the period under study. Moreover, in order to make clear decision and summarize the study, factors that affect GDP per capita growth were considered and regressed together with VAT revenue on GDP per capita. The analysis showed that, except exchange rate, all the other variables i.e. inflation rate, trade balance, real interest rate and foreign direct investments affected the GDP growth rate per capita positively. The analysis showed that regressive tax reforms revenue had a considerable contribution for the improvement of the welfare of citizens under the period of study for their inclusion in the VAT model resulted to be significant. Therefore, value added tax as a measure of indirect taxes is the most effective tax to introduce the reforms. It is the most effective source of generating income for enhancing economic growth in Kenya. Therefore the State should impose more VAT reforms to sectors in which VAT had contributed the least as compared to other economic variables considered in the study. Although the other factors contributed positively to the GDP growth rate, the effects of such contributions were statistically insignificant only exchange rate as a factor that influences GDP. This makes it necessary for increased policy reforms to such sectors where the contribution effects were insignificant.

CHAPTER ONE

INTRODUCTION

1.1 Background

For the smooth running of government activities, any government will need funds. Taxes are a good source of revenue for government expenditure and on the other hand aid in the distribution of income as well as wealth. Any tax charged has a distributive effect on the income of the tax payer. There are three different approaches to distribution of tax burdens: progressive taxes in which "individuals with higher incomes bear a higher tax burden than those with lower incomes", proportionate tax where the tax rate is fixed as the amount subject to taxation increases and regressive tax which impose greater burden relative to resources on the poor than on the rich. Regressive taxes will attempt to reduce the tax incidence of people with higher ability- to-pay as they shift the incidence disproportionately to those with lower ability- to- pay and as a result low income earners are taxed proportionately higher than high income earners.

There are also two types of taxes: direct taxes and indirect taxes. Direct taxes constitute taxes paid directly by individuals or companies while indirect taxes are those collected by an intermediary, where the final tax burden is borne by a different person, such as the consumer. Examples of direct taxes are personal income tax, corporate profit tax and land value tax. In Kenya, indirect taxes include Value Added Tax (VAT), excise tax, customs and stamp duties.

Osoro (1993) observed that, many developing countries where hard hit by the economic crises that were experienced since the first oil shock in 1973 with the main victim being the tax system. Taxes formed the main source of revenue. Government Expenditure exceeded tax collections resulting to large fiscal deficits. this continued year after year

leaving the countries with printing more money as the only available option whose consequence was to raise inflation and hence the cost of living for many people in these nations. Until recently, overdependence on a small number of sources of tax revenue was a major problem in many tax systems. This called for the need of tax reforms.

VAT has been the centerpiece of tax reform in many developing countries Kenya included. The VAT law is contained in the Value Added Act, Cap 476 Laws of Kenya. Following the replacement of sales tax with VAT on 1st January 1990, further reforms and rationalization were continued involving the lowering of top rate from 150% to the standard rates of 16% and reduction of the number of tax rates from 15 in 1990 to 3 currently i.e. Exempt, Zero rated and standard rate 16% (Mutua, 2012). It was expected that these changes would lead to reduction in tax evasion, stimulate saving and investment by simplifying the system and make the system more efficient as large dispersion of tax rate impose heavy costs.

Advanced tax systems have compounded taxes in which residents pay more than one type of tax. This plan helps to insulate against economic shocks than could impair revenue generation by reliance on only one form of tax. In this case the administrators tend to balance so that when one type is low the other type of tax can be high (Tax Justice Network, 2011). However there is a disadvantage of using manifold taxation. This consists in making the system complex and increasing administrative costs.

1.1.1 Kenya's Tax System

Taxation is the key source of revenue that the government of Kenya uses to provide public services to its citizenry. Over the last decade tax performance in Kenya has significantly improved in nominal terms averaging about 24% of the size of the

economy. This has enabled the government to finance 60% of the budget. Kenya's tax system comprises personal income tax, excise taxes, value added tax (VAT) and corporate taxes. Personal income tax is directly derived from business income, employment income, rent income, dividends, interests, and pension, among others (Karingi et al, 2004). The Kenya Revenue Authority (KRA) and Karingi et al (2004) reveal that there are various taxes under personal income tax including Pay As You Earn (PAYE) and income tax. Income tax constitutes over 30% of total tax revenue in the country (KRA, 2011). It is charged on income earned by any person resident in Kenya for at least 183 days in a year or has a permanent home in Kenya.

Trade taxes are basically levied on imports and exports. All imported goods are subject to import duty unless they receive preferential treatment. The current structure is determined by the international trade agreements that Kenya is party to, for example the East Africa Community, the Common Market for Eastern and Southern Africa (COMESA), and World Trade Organisation. Trade taxes stand at about 13 per cent of total revenue in Kenya. Trade taxes are used for generating revenue, to facilitate trade and protect or bolster domestic manufacturing industry. As such reforms in customs have been determined by the objective the government wants to pursue with regard to international trade.

Excise taxes are charged in selected items, especially luxury goods and services. One characteristic of luxury goods and services is that they are very elastic to incomes and almost inelastic to prices. This means that even when prices increase, consumers are likely to demand the same quantities, not lower. Hence luxury goods are a naturally attractive destination for the revenue collector. In addition to generating revenue, excise taxes "allow governments to reduce negative externalities generated in the production

and consumption of goods" such as tobacco, alcohol and drugs (Kiringai, 2002 and Karingi *et al*, 2004).

Value added tax (VAT) was devised in 1989 under VAT Act Cap 476 of Kenyan laws to replace sales tax and was enforced from January 1990. VAT is a consumption tax levied on local supply of goods and services and on imports. Currently, VAT accounts for about 30% of total KRA revenues. It is administered via eight schedules and ranges from zero to 16 percent of the value of services or goods traded. despite the reforms instituted on VAT , VAT structure has faced a number of challenges including high administrative costs, leakages and distortion of the VAT system owing to exemptions and zero rating as well as low productivity. In addressing these challenges the government introduced and consequently tabled a VAT legislation that seeks to make VAT system simpler and rationalise zero rated and exempted supplies. Since VAT is a regressive tax the final approval of the VAT law by parliamentarians will determine the extent to which it will burden poor.

Corporate taxes, enshrined in Income Tax Act, Cap 470, are directly levied on profits made by corporate organizations. Target entities include limited companies, trusts, members clubs, societies and associations, and cooperatives.

Over the last forty years, tax collection while having gradually improved has experienced large fluctuations when measured as a ratio of actual tax share of gross domestic product (GDP). Revenue collection has been increasing with an increment noted each year as the minister of finance reads the budget for the next financial year. Table 1.1 shows that the proportions of revenue collection from different sources have remained relatively static throughout the last thirteen years. The structure of revenue

collection has thus remained similar since the fiscal year 2000/2001 with little changes noted after 2007.

Table 1.1: Tax per GDP in Kenya, various fiscal years

Tax per GDP per type of tax					
	2000/01	**2004/05**	**2007/08**	**2009/10**	**2012/13**
Excise	19%	19%	16%	14%	11%
Imports	13%	13%	12%	11%	11%
Withholding tax	6%	6%	6%	5%	3%
Corporation tax	13%	13%	16%	19%	22%
Personal tax	1%	1%	1%	1%	1%
Pay as you earn (PAYE)	21%	21%	22%	23%	24%
VAT	28%	28%	29%	27%	28%

Source: Kenya Revenue Authority, various reports

The table also shows that of all the taxes, the VAT makes the most significant contribution to the revenue collected by the government, followed by PAYE, excise taxes, corporation taxes and import taxes. Withholding taxes and personal taxes make the least contribution.

1.1.2 Tax Reforms in Kenya

Kenya's tax system has undergone continual reform over the last thirty years. The main objectives of tax reforms in most developing countries are among others; the revenue

adequacy, economic efficiency, equity, and simplicity (Osoro 1993), with the adequacy of revenue the basic standard that a tax system ought to achieve.

During the period after independence, revenue administration underwent minimal reforms. Tax functions were based in distinct departments that oversaw tax affairs in the entire East African Community. The departments charged with the responsibility of revenue collection were: income tax and customs and excise both anchored on the British Common Law. The economy was growing at an impressive 6 per cent. The period between 1970 and 1980 was marked by two severe economic shocks; the 1973 oil shock that resulted to a fivefold increase in oil prices weakening the Kenya's capacity to fully finance her budget and inducing heavy concessionary foreign borrowing that was granted without much conditionality and the 1976-1979 boom and burst cycle in the coffee and tea prices which sparked ratcheting of consumer and government spending and resulted to inability by the government to reduce spending after the boom ended (KRA, 2010).

In response to the emerging fiscal crisis, Kenya replaced the existing consumption taxes with a sales tax in the fiscal year 1972/73 with the aim of taxing specific types of goods to raise extra revenue. The sales taxes were also used to set a stage for the change in policy in early 1980s to de-emphasize direct taxes and give prominence to the less intrusive indirect taxes.

Kenya introduced the Tax Reform Programme in 1986 with the hope that this would, among other things, enhance revenue collection, improve tax administration and reduce compliance and collection costs. Despite the tax modernization, there are concerns that the challenges that face the Ministry of Finance and Kenya Revenue Authority today

are not much different from the challenges that faced these revenue authorities before the reforms. There are also concerns that tax competitiveness in Kenya is low and the country remains among the most tax unfriendly countries in the world.

Generally, tax reform in developing countries involves broad issues of economic policy as well as specific problems of tax structure design and administration (Musgrave, 1987). There has been a reduction in direct taxes through a widening of tax brackets and gradual lowering of income tax rates. Indirect taxes have been increased to cover the shortfall in revenue. Since indirect taxes are regressive and therefore impose a greater burden on the poor, this shift has been criticized as reducing the redistributive effect of the tax system (Muriithi, 2003).

When taxes on goods and services are broken down, VAT contributes the largest share (over 60%) of taxes on goods and services (Karingi, 2004). VAT was introduced in Kenya in 1990 to replace sales tax. This shift was motivated by the argument that VAT (relative to sales tax) had a higher revenue potential, and that its collection and administration were more economic, efficient and expedient. Since 1991, a number of steps have been taken to rationalize and strengthen the VAT and other consumption taxes, most importantly by moving several items subject to VAT from specific to ad valorem rates and broadening VAT coverage in the service sector. Generally, four measures were applied to broaden the base of VAT. First, retail-level sales tax was changed to manufacturer-level VAT including business services (from 1990). Second, the tax point was gradually moved from the manufacturer to the retail level in a number of sectors including jewellery, household appliances and entertainment equipment, furniture, construction materials, vehicle parts, and pre-recorded music. As a result, the coverage of VAT on goods supplied at retail level expanded tremendously from 1990

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through 1995. Third, "goods" were redefined to exclude the supply of immovable tangible and all intangible property and rental or immovable property. Fourth, the coverage of the service sector was expanded (from 1991) to include business services; hotel and restaurant services; entertainment; conferences; advertising; telecommunications; construction; transportation; the rental, repair and maintenance of all equipment (including vehicles); and a range of personal services (KIPPRA. 2004).

In Kenya tax reforms range from those specific to the type of tax to tax administrative reforms. In the recent past, some of the reforms within the VAT Department of the Kenya Revenue Authority are the enhancement of awareness among taxpayers on VAT vide the introduction of tax registers and sensitizing the public on obtaining official and legal receipt for purchase (Kariba, 2011)

VAT, being a consumption tax, is considered to be generally regressive especially if levied on essential items because they take a greater share of the income of low-income households than that of the high-income households. That is, the poor spend more of their income on consumption than the rich. One of the ways of dealing with VAT regressivity is through exemptions and zero ratings as occasioned by the many VAT Acts enacted for the periods with the most recent as per the finance bill, 2012 where the minister of finance in his budget speech proposed to reduce the number of items under the zero rated and exemptions regime in an effort to reduce the cost of tax administration and the reduction of the complexities in the VAT administration and to avoid paying a lot of refunds to taxpayers .

A tax will discourage some economic activities. Taxes do collect some revenue but the revenue collected from the tax cannot exceed the loss in consumer and supplier surplus.

The regressivity of a particular tax often depends on the propensity of the tax payers to engage in the taxed activity relative to their income. In other words, if the activity being taxed is more likely to be carried out by the poor and less likely to be carried out by the rich, then the tax may be considered regressive. All these moves have had an impact on the end user consumers and the small businesses in the country.

1.1.3 Economic Welfare in Kenya.

Taxes are used to assist in the redistribution of wealth and incomes and to regulate economic activities. To this end, tax policy decisions have different impacts on different individuals, businesses and the economy at large. Governments need to develop tax policies and tax systems that are guided by certain tenets. Since taxation affects incomes and prices of goods and services, individuals and businesses react differently in response to changes in income, and in relative prices, emanating from taxation (Garner, 2005). Therefore, analysis of the effects of tax policy is critical for government decision makers and the public to make informed policy decisions.

Economic welfare is the measure of the level of prosperity and quality of living standards of either an individual or a group of persons. It refers to utility gained through the achievement of material goods and services. It is that part of social welfare that can be fulfilled through economic activity (Samuelson, 2004). It can be measured in terms of real income and Real gross domestic product. An increase in Real Output and real incomes suggests people are better off and therefore there is an increase in economic welfare. Economic welfare will be concerned with more than just levels of income. According to Roefie Hueting, welfare is dependent on factors like employment, income distribution, labor conditions, leisure time, production and the scarce possible uses of the environmental functions (Hueting R, 2011).

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According to Stiglitz et al (2005) welfare is concerned with wellbeing, which encompasses many dimensions, including material living standards, health, education, political voice, social relationships and the environment. Economics is concerned with ideas of utility. Utility represents the satisfaction / happiness of a consumer. The major advantage of GDP per capita as an indicator of standard of living is that it is measured frequently, widely, and consistently. A rise in per capita GDP signals growth in the economy and tends to translate as an increase in productivity. A higher per capita GDP can be interpreted as higher standard of living.

Before independence, the economic management of the country was largely a preserve of the colonial administration. In the early years of independence, Kenya achieved an impressive economic growth rates averaging 6.6per cent between 1964 and 1973. The 1973 oil shock resulted to an increase in oil prices in Kenya that weakened the economy's capacity to fully finance her budget and induced heavy concessionary foreign borrowing granted without much conditionality. This was followed by the boom and burst cycle in the coffee and tea prices in 1976-1979 which sparked high consumer and government spending and resulted to inability by the government to reduce spending after the boom ended (KRA, 2010).

The early 1980s was faced with high levels of external debt, shaky finances and a weak domestic revenue generation capacity. By 1982, the lowest and highest tax brackets were widened in a move toward maintaining real incomes of households as an attempt to address the widening income gap between the rich and the poor.

The tabulation below illustrates the relationship between revenue collected over the period from 1992/93 to 2012/13 and the corresponding GDP growth rate in Kenya and GDP at market prices.

Table 1.2 GDP growth and tax revenue(Economic Surveys 1993-2013)

Year	Kenya's GDP Growth Rate%	Sub-Saharan GDP Growth Rate%	Kenya's GDP in market price ksh billion	Kenya's Tax Revenue ksh Billion
1992/93	0.5	0.7	256.1	69.1
1993/94	0.2	1.4	320.1	100.8
1994/95	3	3.4	400.7	122.4
1995/96	4.8	3	465.3	125.1
1996/97	4.6	5.8	526.6	145
1997/98	2.4	3.5	623.2	166.1
1998/99	1.8	3.4	690.9	179.7
1999/00	1.4	2.2	743.5	177.8
2000/01	0.2	4.1	909.7	185.1
2001/02	1.2	3.5	964.1	187.9
2002/03	0.3	3.1	1,025.90	210.8
2003/04	2.8	5.4	1,056.50	254.7
2004/05	4.6	4.8	1,107.70	292.9
2005/06	5.8	5.4	1,415.70	314.5
2006/07	6.4	5.4	1,622.60	432.2
2007/08	7	4.5	1,828.80	487.2
2008/09	1.6	5.5	2,077.40	586.4
2009/10	2.7	2.8	2,376.00	667.5
2010/11	5.8	5	2,570.30	748.2
2011/12	4.4	5.5	3,047.40	786.2
2012/13	4.6	5	3,403.50	830.3

1.2 Problem Statement

Major tax reforms in Kenya's tax system were started in 1986 triggered by the fact that the ratio of total tax revenue to GDP was relatively low compared with countries with similar economic and tax structures, the ratio of actual tax revenue to budgeted revenue in the annual government budget was low as Kenya was then not able to raise sufficient

taxes to meet the revenue targets set in the successive budgets leading to regular donor dependency in the first three decades after independence (KRA, 2010).

Tax reforms aim at broadening the tax base and the network of taxpayers and ensuring high levels of voluntary compliance to tax laws and low costs of tax administration in addition to revenue adequacy. This may not be out rightly possible with direct taxes. As a result, there has been a reduction in direct taxes. Indirect taxes have been increased to cover the shortfall in revenue. Since indirect taxes are regressive and therefore impose a greater burden on the poor, this shift has been criticized as reducing the redistributive effect of the tax system.

The undesirable net effect of regressive tax is that the people in the lower income bracket are left worse off in real terms than those in the upper income bracket, which can worsen the purchasing power (consumption) of the former lot. At the same time, if at all tax revenue was meant to improve wealth distribution, then regressive taxes is hurting more the same target group it should be protecting by re-distribution which is a contradiction. Notably, the low income category constitutes the majority of Kenyans meaning there is a way regressive taxes can discourage consumption, reduce disposable savings and investment, thereby reducing growth alongside lowering tax collection volume. The tax may be applied to either production or sale, to domestic output or imported. The tax is directly paid by the manufacturers, but the tax burden is passed to the consumers through an increase in prices (Karingi *et al.*, 2005).

The studies done in Kenya on tax reforms such as Muriithi & Moyi (2003) concentrated on the overall tax system Tax reforms and revenue mobilization in Kenya. None of the studies reviewed the effect of the regressive taxes which have all along been imposed

instead of direct taxes on the welfare of the taxpayers. The effects of the regressive taxes on economic growth and the overall standards of living in Kenya have therefore not received much attention despite the fact that the Kenyan government has had several changes on tax rates and tax regimes over the period. This study attempts to establish the impact of regressive Tax reforms on the economic welfare in Kenya.

1.3 Research questions

i.   What is the effect of regressive tax reforms on tax revenues?

ii.   What is the relationship between regressive taxes and GDP per capita as a measure of economic welfare?

iii.   Which policy implications can be drawn from i and ii above?

1.4 Research objectives

General objective

The main objective of this study is to examine the effects of regressive taxes on economic welfare in Kenya.

Specific objectives

The study will seek to achieve the following specific objectives:

i.   To analyze the effects of regressive tax reforms on tax revenues

ii.   To model the relationship between regressive taxes and GDP per capita as a measure of Economic welfare in kenya

iii.   To come up with policy options drawn from i and ii above.

1.5   Significance of the Study

Tax revenues are the most sustainable source of financing for public expenditures in developing countries. Historically, taxes have distortionary effects on individuals' consumption-savings and/or leisure-labour supply decisions. The indirect taxes are regressive and their effect is much felt by the final consumers who in most times are the poorer segments of the society. This is because the effect of these taxes can be passed to the next level of economic transaction vide increased prices. Such effects make prices high and as a result may affect the small businesses.

The distribution of the tax burden has a major implication on the levels of equality and inequality in the society. How much the tax burden weighs on the different socio economic and demographic groups in a society remain an issue. A better understanding of the distribution of the tax burden is important in the formulation and assessment of tax systems by policy makers. The distribution of the burden of a tax determines how a tax instrument can be used in achieving income redistribution.

This study makes clear the effects of tax reform measures on the levels of GDP output. It contributes to the existing literature on economic reforms in Kenya and the effects it has on economic welfare. The results are useful in designing effective fiscal policy programs that can propel economic performance to achieve the desired level of development through indirect taxes which are less intrusive than the direct taxes. The study provides an insight to the policy makers on the choice of reforms measures as well as providing guidelines on the implementation of such reforms to reach at desired economic performance. It gives an understanding of the distribution of the tax burden and is helpful to policy makers in the formulation and assessment of tax systems.

In addition, the study sheds light on the responsiveness of Gross Domestic Product as a measure of economic welfare to the changes on tax revenue as a result of tax reforms and is thus of crucial importance for economic planning purposes and in the budget making process since it can be used as a guiding principle when implementing tax reform measures.The study contributes to the body of knowledge on the effectiveness of tax reform programs and the effects of increased tax revenues and the distribution of the tax burden on the different socio economic and demographic groups in the society.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews both theoretical and empirical literature on the relationship between fiscal policy reforms and economic growth. The first section reviews the theory and exposes the theoretical foundations that expound on the effects of fiscal policy reforms on economic growth. The second section reviews the empirical literature on this area. The final section deals with an overview of the empirical literature where the critique and the summary of the literature are done.

2.2 Theoretical Literature

The role played by taxation in an economy has evolved over time in the macroeconomic literature. The effects of taxation may reduce allocative efficiency and ultimately, may have a negative effect on economic growth. A number of approaches have been suggested to analyze the impact of taxation on economic performance, and in particular, on economic growth.

Classical Theory

The term 'Classical' refers to work done by a group of economists in the 18th and 19th centuries. Much of this work was developing theories about the way markets and market economies work. Classical economists include, Karl Marx, Malthus, Ricardo, Adam Smith among others.

According to Smith, in his book the wealth of nations, tax systems should specifically identify and tax those whom government benefits. Adam Smith considered taxes levied on raw produce, necessities, wages and profits as falling entirely or partly on rent. In his

wealth of nations, Smith discussed the effects of various taxes on the system of natural order. He said that taxes levied on raw produce are in reality taxes on rent and though they may be originally advanced by the farmer are finally paid by the landlord. Thus an increase in the tax rate on raw produce decreases rent leaving necessities and luxuries unaltered. An increase in tax rate on necessities raises the prices of necessities and luxuries and reduces rent. The increment in prices of necessities increases wages. Thus, tax on necesities has the same effect as direct tax on wages. A direct tax on labour distorts the match between natural price and market price because the cost of labour is already reflected in natural price so that government actions that increase the cost of labour (for example a direct tax on wages) increase natural price and adversely affect supply. For Smith, indirect taxes on labour are even worse than direct taxes because of the additional costs associated with collection. The cost associated with both direct and indirect taxes on wages are eventually borne by the consumer through higher prices.

David Ricardo (1772-1823) criticized Smiths Conclusion regarding tax on Raw Produce. Ricardo explained that the profit that a capitalist receives is the "residual" that remains after the capitalist pays the cost of replacing the capital that has been used in production and the cost of labor. According to Ricardo, a tax on raw produce would rise price of raw produce, increase wages and reduce profit. Ricardo insisted that taxes should be levied on profits. He said that," If a tax in proportion to profits were laid on all trades, every commodity will be raised in price. But if the mine which supplied us with the standard of our money, were in this country, and the profit of miner were also taxed, the price of no commodity would rise, each man would give an equal proportion of his income and everything would be as before" (Ricardo,1951).

Ricardo considers taxes on wages and basic commodities as a cause for the diminution of the rate of profit. Both increase the money wage directly or indirectly and, therefore, lower the rate of profit. Similarly, a profit tax - through the wage adjustment mechanism - diminishes the economy's average rate of profit; whereas taxes on rent and luxuries have no such impact.

Discussing the effect of indirect taxes, Ricardo initially accepts Smith's proposition that a specific or an *ad Valorem* tax on agricultural products will increase their prices but differs on the possible distribution effects of such a tax. Ricardo's central idea is that a specific or an *ad valorem* tax on agricultural products will increase the cost of production, and will therefore raise the price of raw produce to the level that incorporates the invariable average rate of profit. Ricardo further asserts that "a rise in price is the only means by which he could pay the tax, and continue to derive the usual and general profits from this employment of his capital." Costs will increase in the other branches of production which use agricultural products as inputs. Since they cannot afford a rate of profit lower than the average, they must increase their selling prices.

Ricardo concludes that taxation and government spending, in the long-run, exert a negative effect on capital accumulation. The slowdown in the growth rate of output and productivity in most economies is attributed, in a great way, to the growth of taxation and the concomitant rise in government spending.

A review of the major theoretical arguments regarding tax policy reforms and economic growth is done. Economic theory suggests a number of approaches that can clarify on the consumption behavior and its effects on revenue productivity and economic growth. According to Eftekhari, (2009) taxation has always been an issue for the government and taxpayers alike. The issue of taxation has generated a lot of controversy and severe

political conflicts over time (Adebisi and Gbegi, 2013). According to taxation importance, several economic theories have been proposed to run an effective system. Taxes are generally classified under three different theories given as: ability to pay principle, benefit approach and equal distribution principle.

2.2.1 Ability-to-Pay Principle

As the name suggests, it says that the taxation should be levied according to an individual's ability to pay. It says that public expenditure should come from those who have instead of those that don't have. The principle originated from the sixteenth century, the ability-to-pay principle was scientifically extended by the Swiss philosopher Jean Jacques Rousseau (1712-1778), the French political economist Jean-Baptiste Say (1767-1832) and the English economist John Stuart Mill (1806-1873). This is indeed the basis of "progressive tax" as the tax rate increases by the increase of the taxable amount. This principle is indeed the most equitable tax system, and has been widely used in industrialized economics (Adebisi and Gbegi, 2013). The usual and most supported justification of ability to pay is on grounds of sacrifice. According to Adebisi and Gbegi, (2013) the payment of taxes is viewed as a deprivation to the taxpayer because he surrendered money to the government which he would have used for his own personal use. However, there is no solid approach for the measurement of the equity of sacrifice in this theory, as it can be measured in absolute, proportional or marginal terms. The economists are not unanimous as to what should be the exact measure of a person's ability to pay. The main viewpoints advanced in this connection are as follows:

Ownership of property

Some economists are of opinion that ownership of the property is a very good basis of measuring one's ability to pay. This idea is out rightly rejected on the ground that if a person earns a large income but does not spend on buying any property, he will then escape taxation. On the other hand, if another person earning some income but buys property, he will be subjected to taxation.

Tax on the basis of expenditure

It is also asserted by some economists that ability to pay should be judged by the expenditure which a person incurs. The greater the expenditure the higher the tax should be and vice versa. The viewpoint is unsound and unfair in every respect. A person having a large family to support has to spend more than a person having a small family. If we make expenditure as the test of one's ability to pay, the former person who is already burdened with many dependents will have to pay more than the latter who has a small family. This is unjustifiable.

Income as the basis

Most of the economists are of opinion that income should be the basis of measuring a man's ability to pay. It appears very just and fair that if income of a person is greater than that of another, the former should be asked to pay more towards the support of the government than the latter. That is why in the modern tax system of the countries of the world, income has been accepted as the best test of for measuring the ability of a person to pay.

2.2.2 Benefits Theory

The theory states that the governments should levy taxes on individuals according to the benefit conferred on them. The more the benefits a person derives from the activities of the governments, the more he should pay to the governments. This principle has been subjected to severe criticism. First, if the government maintains a certain connection between the benefits conferred and the benefits derived. It will be against the basic principles of tax. A tax, as we know, is compulsory contribution made to the public authorities to meet the expenses of the government and the provision of general benefit. Secondly, most of the expenditure incurred by the government is for the general benefit of its citizens, and it's not possible to estimate the benefit enjoyed by a particular individual every year. Finally, if this principle is applied in practice, then, the poor will have to pay the heaviest taxes, because they benefit more from the services of the government. If more are collected from the poor by the way of taxes, it is against the principle of justice.

2.2.3 The Cost of Service Theory

Some economists were of the opinion that if the state charges actual cost of the service rendered from the people, it will satisfy the idea of equity or justice in taxation. The cost of service principle can no doubt be applied to some extent in those cases where the services are rendered out of prices and are a bit easy to determine, e.g., supply of electricity, postal, etc. But most of the expenditure incurred by the government cannot be fixed for each individual because it cannot be exactly determined.

2.2.4 The Theory of Optimal Taxation

The standard theory of optimal taxation posits that a tax system should be chosen to maximize the 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. For our purposes in this essay, these differences are of secondary importance, and one would not go far wrong in thinking of the social planner as a classic "linear" utilitarian. 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, as we will see, drawing policy conclusions from a model with a representative consumer can also in some cases lead to trouble.

After determining an objective function, the next step is to specify the constraints that the social planner faces in setting up a tax system. In a major early contribution, Frank (1927) suggested one line of attack: suppose the planner must raise a given amount of tax revenue through taxes on commodities only. Ramsey showed that such taxes should

be imposed in inverse proportion to the representative consumer's elasticity of demand for the good, so that commodities which experience inelastic demand are taxed more heavily. Ramsey's efforts have had a profound impact on tax theory as well as other fields such as public goods pricing and regulation.

However, from the standpoint of the optimal taxation literature, in which the goal is to derive the best tax system, it is obviously problematic to rule out some conceivable tax systems by assumption. Why not allow the social planner to consider all possible tax schemes, including nonlinear and interdependent taxes on goods, income from various sources, and even noneconomic personal characteristics? But if the social planner is allowed to be unconstrained in choosing a tax system, then the problem of optimal taxation becomes too easy: the optimal tax is simply a lump-sum tax. After all, if the economy is described by a representative consumer, that consumer is going to pay the entire tax bill of the government in one form or another. Absent any market imperfection such as a preexisting externality, it is best not to distort the choices of that consumer at all. A lump-sum tax accomplishes exactly what the social planner wants. In the world, there are good reasons why lump-sum taxes are rarely used. Most important, this tax falls equally on the rich and poor, placing a greater relative burden on the latter.

Actual governments, however, cannot directly observe ability, so the model still fails to deliver useful and realistic prescriptions. Mirrlees (1971) launched the second wave of optimal tax models by suggesting a way to formalize the planner's problem that deals explicitly with unobserved heterogeneity among taxpayers. In the most basic version of the model, individuals differ in their innate ability to earn income. The planner can observe income, which depends on both ability and effort, but the planner can observe neither ability nor effort directly. If the planner taxes income in an attempt to tax those

of high ability, individuals will be discouraged from exerting as much effort to earn that income. By recognizing unobserved heterogeneity, diminishing marginal utility of consumption, and incentive effects, the Mirrlees approach formalizes the classic tradeoff between equality and efficiency that real governments face, and it has become the dominant approach for tax theorists.

In the Mirrlees framework, the optimal tax problem becomes a game of imperfect information between taxpayers and the social planner. The planner would like to tax those of high ability and give transfers to those of low ability, but the social planner needs to make sure that the tax system does not induce those of high ability to feign being of low ability. Indeed, modern Mirrleesian analysis often relies on the "revelation principle." According to this classic game theoretic result, any optimal allocation of resources can be achieved through a policy under which individuals voluntarily reveal their types in response to the incentives provided. In other words, the social planner has to make sure the tax system provides sufficient incentive for high ability taxpayers to keep producing at the high levels that correspond to their ability, even though the social planner would like to target this group with higher taxes. The strength of the Mirrlees framework is that it allows the social planner to consider all feasible tax systems. The weakness of the Mirrlees approach is its high level of complexity. Keeping track of the incentive compatibility constraints required so that individuals do not reduce as if they had lower levels of ability makes the optimal tax problem much harder. Since the initial Mirrlees contribution, however, much progress has been made using this approach. General treatments of the Mirrlees approach are found in Tuomala (1990), Salanie (2003), and Kaplow (2008).

2.3   Empirical Literature

Several empirical studies have investigated the relationship between taxation policies and economic growth. Morrisset and Izquierdo (1993) examined the main factors contributing to an improved revenue performance. It was found that changes in tax legislation, tax administration and minimal tax evasion were the main contributors to improved revenue performance. Osoro (1993) examined the revenue productivity implications of tax reforms in Tanzania. In the study, the tax buoyancy was estimated using double log form equation and tax revenue elasticity using the proportional adjustment method. The argument for the use of proportional method was that a series of discretionary changes had taken place during the sample period, 1979 to 1989, making the use of dummy variable technique impossible to apply.

Adari's (1997) study focused on the introduction of value added tax (VAT) in Kenya that replaced sales tax in 1990. The study analyzed the structure, administration and performance of VAT. The estimated buoyancy and elasticity coefficients were less than unity implying a low response of revenue from VAT to changes in GDP. This suggested the presence of laxity and deficiencies in VAT administration. Wawire (2000) used total GDP to estimate the tax buoyancy and income-elasticity of Kenya's tax system. Tax revenues from various sources were regressed on their tax bases. Based on empirical evidence, the study concluded that the tax system had failed to raise necessary revenues.

Chipeta (1998) evaluated 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. The study concluded that the tax bases had grown less rapidly than GDP. She concluded that Buoyancy of these taxes may be improved by changing the basis of taxation from

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specific to ad valorem. She also concluded that Malawi needed policy that would reduce indirect tax rates further, especially for taxes on capital and intermediate goods to stimulate business activity and investment, and for taxes on goods that are consumed by the poor.

Kusi (1998) studied tax reform and revenue productivity of Ghana for the period 1970 to 1993. Results showed 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 study concluded that the reforms had contributed significantly to tax revenue productivity from 1983 to 1993.

Yamarik (1999) studied the effects of nonlinear tax structure on long run economic growth, specifically on the "distortionary not the redistributive effects of taxation on economic growth". The study found two results. The first being that the addition of a nonlinear tax structure into the *Ak* growth model makes the convergence behavior of the neoclassical growth model apparent. Secondly, more relevant to this study, he finds that more progressive tax structure "through time will lower the transitional growth rate and raise the speed of convergence". He reasons that capital accumulation causes endogenous increases in tax rates along with declining after tax averages and marginal products of capital. The end result is low transitional growth rates of consumption, capital and output. He acknowledges that these results may suggest that tax progressivity through time may be another basis of variation in per capita growth rates.

Milambo (2001) used the Divisia Index method to study the revenue productivity of the Zambian tax structure for the period 1981 to 1999. The results showed elasticity of 1.15 and buoyancy of 2.0 which confirmed that tax reforms had improved the revenue

productivity of the overall tax system. However, these results were not reliable because time trends were used as proxies for discretionary changes and this was the study's major weakness.

According to Caucatt et. al (2002) progressive taxation makes the human capital investment decision less appealing. Barro (1992) and Bassanini and Scarpetta (2001) both find that human capital positively impacts economic growth in the long run. Less human capital attainment will thus lead to slower growth. Human capital accumulation has the potential to increase the earning power of those who invest in it. From an investment perspective progressive taxation decreases the marginal benefit received from human capital accumulation (Heckman et. al 1998). It makes the investment decision less appealing and can thus deter students from pursuing higher education. Caucatt et Al (2002) find that greater tax progressivity has the potential to decrease human capital and growth in the long run while increasing the "skill premium".

Zeng and Heng (2003) used an extended Schumpeterian growth model to study long-run growth effects of consumption, capital and labor income taxes and the effects of the allocation of tax revenue on the magnitudes of the growth effects of taxation. They show that, if tax revenue is used for lump-sum transfers, then consumption, capital and labor income taxes affect long-run growth adversely. But if all the tax revenue is used for public consumption goods, then the two income taxes have negative effects and consumption tax does not have any effect on long-run growth. Finally Zeng and Heng (2003) realize that the extent of the growth effects of taxation depend on the allocation of tax revenue. When high tax revenue is allocated to lump-sum transfers, it had higher growth effects and vice versa.

Muriithi and Moyi (2003) applied the concepts of tax buoyancy and elasticity to determine whether the tax reforms in Kenya achieved the objective of creating tax policies that made yield of individual taxes responsive to changes in national income. Using the proportional adjustment (PA) method to isolate discretionary effects, the results showed that tax reforms had a positive impact on the overall tax structure and on individual tax handles. The combined period (1973–1999) indicates that individual tax bases responded favourably to changes in income. Unfortunately, the growth in tax revenue lagged behind the growth in individual bases. This further dampened the responsiveness of tax revenue to changes in GDP. The study concluded that despite the positive impact, the reforms failed to make VAT responsive to changes in income.

Lee and Gordon (2005) studied the effects of corporate tax structure of GDP growth. They begin their discussion by analyzing positive externalities resulting from tax structures which are not accounted for in the neo-classical framework that may potentially affect economic growth. They find that corporate tax is negatively correlated with economic growth using cross section data from 70 countries from 1970 to 1997. Lee and Gordon's regression result predicts that a ten percent decrease in the corporate tax rate will lead to a 1.1% increase in GDP growth. Their result suggests to me that taxing corporations deters them from making more investment decisions that lead to greater economic growth

Padovano and Galli (2007) examine the effects of tax rates on economic growth in 23 OECD countries from 1950 to 1990. They find that higher marginal tax rates and tax progressivity are negatively correlated with long-run economic growth. Padavano and Galli explain that these results contradict previous literature that tax structure and economic growth are not significantly correlated because their regression depended on

marginal tax rates, not the previously erroneously used average tax rates. These results suggest that the effect of progressivity must be judged based on the socioeconomic specific effects of the tax schedule not just the total amount of revenue collected.

2.4 Overview of Literature

High revenue productivity from a tax system is normally considered as one of the criteria of a good tax system in developing countries (Musgrave, 1989). Studies by Morrisset and Izquierdo (1993) Adari's (1997) Chipeta (1998) Kusi (1998) Milambo (2001) Muriithi and Moyi (2003) showed that, both tax policy reforms and tax administration reforms, had a positive impact on the overall tax structure and that the reforms are crucial in making tax revenue responsive to changes in national income which in the process enhances revenue productivity.

Ariyo (1997) evaluated the productivity of the Nigerian tax system for the period 1970 - 1990. The aim was to devise a reasonable accurate estimation of Nigeria's sustainable revenue profile. In the study, tax buoyancy and tax revenue elasticity were estimated. The slope dummy equations were used for the oil boom and SAPs. It was found that on the overall, productivity level was satisfactory. However, the results indicated wide variations in the level of tax revenue by tax source. The variations were attributed to the laxity in administration of non-oil tax sources during the oil boom periods. Significant reduction in public expenditure and prudent management of financial resources were suggested as solutions to the fiscal deficit. The study further asserted that there was need to improve the tax information system to enhance the evaluation of its performance and facilitate adequate macro-economic planning and implementation (Ariyo, 1997).

According to Kusi (1998), a tax system that is responsive to economic growth is desirable since it enables tax revenue to grow automatically without resorting to the politically difficult task of raising tax rates. However, Chipeta (1998) evaluating effects of tax reforms on tax yields in Malawi concluded that the tax bases had grown less rapidly than GDP. The study concluded that Buoyancy of these taxes may be improved by changing the basis of taxation from specific to ad valorem. It also concluded that Malawi needed policy that would reduce indirect tax rates further, especially for taxes on capital and intermediate goods to stimulate business activity and investment, and for taxes on goods that are consumed by the poor.

All the studies above are did not well inform the policy process on the impact of the regressive tax reforms and revenue yield resulting from them to the general economic players. It is against this background that this study focused on analysis of the effects of tax reforms relating to the regressive taxes which are in most times indirect taxes and to be specific VAT on the economic welfare of Kenya

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter discusses the methodology of the study. The chapter presents the research design, the theoretical framework and the empirical model. It also highlights the data and data source, definition and measurement of variables, testing procedures and the data analysis.

3.1 Research Design

This study aimed at establishing the effects of regressive taxe on economic welfare in Kenya for the period of 1983 to 2013. This study adopted descriptive research approach for the study the subject matter. This is a process where data are gathered through primary and secondary sources. Descriptive design is appropriate because data relating to the variables are collected at about the same time to basically describe the relationship between the variables under study.

3.2 Theoretical Framework

The traditional way to estimate the elasticity of a particular tax, k, is with the following model:

$$T_k \; = \; \alpha_k \, Y^{\beta_k} e_k \; ----------------------- 1$$

Logarithmic transformation gives

$$\ln T_k \; = \ln \alpha_k + \beta_k \ln Y + e_k \; ----------------------- 2$$

Where   T = tax revenue

            Y = GDP per capita

α = constant term

β = buoyancy coefficient

e = natural number

A variety of factors can cause tax revenue to change as well as growth in GDP per capita discretionary changes in tax base and rates; the efficiency of tax administration; introduction of new taxes, and abolition of existing taxes, etc. In order to estimate the effects of such changes to GDP a relationship between GDP growth per capita and factors that influence it is specified as follows.

GDP per capita= f(VAT, INR, ER, FDI, IR,TB)…………………………………….3

Where VAT= valued added tax revenue

INR= inflation rate

ER= exchange rate

FDI= foreign direct investment

IR=interest rate

TB=trade balance

3.3 Econometric Model
3.3.1   Estimable Model

The resulting estimating model becomes:

GDP per capita= β_1 VAT+ β_2 INR+ β_3 ER + β_3 FDI+ β_4 RIR +β_5 TB………………4

The study will estimate relationships namely:

$$\ln(Tr) = \ln(c) + lnGDP + \sum DUMMY + e \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.5$$

Where Tr is the total VAT revenue and is the dependent variable and GDP represents welfare growth and the dummy denotes tax reforms. This independent dummy variable takes values of 0 for the period before the reforms and 1 in the period after reforms. Generally, a tax reform is beneficial if it increases both revenue and social welfare.

Equation 5 can be written as follows:

$$\ln VAT = \ln \alpha + \beta \ln Y + \beta \ln Y_{t-1} + \sum \sigma DUMMY + e - - - - - - - - - - - -6$$

Let VAT represent total revenue from regressive taxes, Y represent economic welfare (measured by GDP per capita) Y_{t-1} is a lagged value of y and DUMMY represent tax reform. Where α is a constant, β_1 is an estimate of the revenue elasticity and δ is the unit change in tax revenue as a result of Tax reform (TR) and e is the error term. The error term captures the other explanatory variables that are not included in the model such as inflation rate, tax base, tax rate etc.

3.4 Definition of variables

Variable	Definition	Measurement	Expected sign
GDP per capita	GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products	Gross domestic product divided by midyear population	Positive

VAT	Tax that is placed on a product whenever value is added at a stage of production and at final sale	As vat tax revenue collected	positive
Inflation rate	The rate at which the general level of prices for goods and services is rising	In percentage of current GDP	negative
Interest rate	The amount charged, expressed as a percentage of principal, by a lender to a borrower for the use of assets	In percentage	positive
Real exchange rate	product of the nominal exchange and the ratio of prices	real exchange rate between Kenya shilling and the United States Dollar	negative
Foreign direct investment	An investment made by a company or entity based in one country, into a company or entity based in another country.	In percentage	positive
Trade balance	It is the difference in monetary value between exports and imports	Ratio of exports to imports as percentage of GDP.	positive

3.5 Data type and source

The study plans to use secondary time series data in terms of various categories of taxes, total revenue a s well as their bases, GDP deflator and consumer price index for the period ranging from 1983 to 2013, from both the Kenya National Bureau of

Statistics (KNBS) and the Kenya Revenue Authority (KRA) and from published official government reports including Economic Surveys and Statistical Abstracts. All variables are measured in terms of Kenya Shillings as the units. Both agencies (KRA and KNBS) collect the macroeconomic data annually on behalf of the government and record them in forms suitable for analytical investigation and economic planning. The range of data series for our study will be for the years 1983 to 2013, giving more than 20 observations/cases to allow for any loses during the pre-estimation diagnostic procedure.

3.6 Testing Procedure
3.6.1 Unit Root Testing

When studying econometric relationship using time series data, there is concern about spurious regression when data series (variables) are non-stationary (Enders, 1995). In this study the Augmented Dickey- Fuller (ADF) and Phillips -Peron (PP) tests were used to test for stationarity of series. The regressors included in the test depended on whether the series had a trend and/or intercept. This was done using an Φ distribution test for the presence of trend and intercept in the series. The test for the presence of trend and intercept was done using Φ_3 and Φ_1 respectively. The calculated Φ_3 and Φ_1 statistics were compared to critical values tabulated in Φ_3 and Φ_1 tables respectively. A series was said to have a trend and/or intercept if the Φ statistic is greater than the critical value at 5 per cent level of significance.

The time lags were chosen automatically based on Schwarz information criterion. The unit root test was performed at 5 per cent level of significance. The series was said to be stationary if the t-statistic is less than the critical value. If a series was found to be non-stationary at level, it was made stationary by differencing. The statistical evidence

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showed that trade balance, real exchange rate, domestic income and foreign income are integrated of order one. The results for unit root test are provided in Appendix.

3.6.2 Cointegration Test

Cointegration implies the long- run relationships of economic variables that is the economic variables may drift apart from each other in the short -run but remain converged to each other in the long- run (Banerjee *et al*., 1993). Since GDP growth model is a multivariate model, Johansen cointegration approach was used to test for cointegration. In order to use this approach a number of lags were needed to ensure that the vector of errors is a white noise and so it was important to establish the lag length. The information criterions and the residual correlogram test suggested the lag length of order one. The test was performed at 5 per cent level of significance. For a cointegrating vector to exist, the trace statistic must be greater than the critical value. The test overlooked the Max-Eigen statistic because according to Bo Sjö (2011), Eigen value max-test is not asymptotically correct as discussed by Johansen(1996).

3.6.3 Error Correction Model

According to the granger representation theorem, when variables are cointegrated there must be an error correction model that describes the short run dynamics or adjustment of the cointegrated variables towards their equilibrium values. The model can be specified as follows:

$$\Delta Yt = \alpha\, \beta Y_{t-1} + \varepsilon t$$

Where Yt is a vector of time series, β is a matrix of co-integrating vectors and α is a matrix of coefficients. In this study, the error correction model will be used to determine the short- run linkages between GDP per capita and VAT tax revenue.

3.7 Data analysis

The study sought to achieve two objectives. The first objective was to analyze the effects of regressive tax reforms on tax revenues. To achieve this objective, the coefficient of dummy variable was interpreted. The interpretation regarded the statistical significance, the sign and the magnitude. The second objective of the study was to model a relationship between regressive taxes and GDP per capita as a measure of economic welfare. To achieve this objective, the coefficient of VAT tax was interpreted. The interpretation concerned the statistical significance and the sign of the coefficient.

CHAPTER FOUR

DATA ANALYSIS INTERPRETATION AND DISCUSSION

4.0 Introduction

This chapter presents data analysis, the estimation results, interpretation of the empirical results and discussion. First, it outlines the descriptive statistics and diagnostic tests follow to avoid spurious results.

4.1 Descriptive statistics:

This section highlights descriptive statistics for GDP growth rate(GDP_GR), actual VAT revenue(VATA), real exchange rate (RIR), trade balance(TB), inflation rate (INR), foreign direct investment(FDI) and the exchange rate (ER). Table 4.1 provides statistics on the mean, maximum, minimum and the standard deviation for each variable.

Table 4.1: Descriptive statistics for the variables

	GDP_GR	VATA	RIR	TB	INR	FDI	ER
Mean	3.539772	62869.45	8.6141	59.36811	10.11589	0.573803	54.79393
Median	4.146839	39263	7.332797	56.48387	8.305783	0.452068	60.3667
Maximum	7.177555	233558	21.09633	73.61452	41.98877	2.676694	88.81077
Minimum	-0.79949	5074.4	-5.77659	47.70277	0.933206	0.004721	13.31152
Std. Dev.	2.172684	62041.49	6.249484	7.976271	7.829579	0.613303	26.31313
Observations	31	31	31	30	31	31	31

Source: authors calculations from raw data

Table 4.1 shows descriptive statistics of the variables over the period of 31 years. GDP growth rate and VAT averaged 3.5397 and 62869.45 respectively. Trade balance and real exchange rate averaged 59.3681 and 54.7939 respectively. On the other hand, real interest rate averaged at 8.61 with the highest real interest rate over the period of study being 21.096 whereas the lowest was -5.77659. Other variables in the study

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averaged as follows inflation rate was 10.11589 and foreign direct investment was 0.5738. During the 31 years, the highest exchange rate was 88.81 and the lowest was 13.31. The maximum and minimum values for other variable were respectively 41.98 and 0.9332 for inflation rate, 2.6766 and 0.0047 for foreign direct investment. Finally, actual VAT revenue recorded the highest standard deviation which indicates the great variability in VAT revenue. The standard deviation for foreign direct investment was the lowest and is equal to 0.6133. This shows low variability in foreign direct investment. Apart from the descriptive statistics presented in table 4.1 above, the time profile of the variables are presented in Appendix A2 showing the trend of each variable over the period of the study.

4.2 Diagonistic tests
4.2.1 Stationarity analysis

Since this study used time series data, it was imperative to test whether data was stationary at levels or needed to be differenced to make them stationary. This was to give assurance on the validity of the results obtained after data analysis. The 30 data series were tested for stationarity using the Augmented Dicky-Fuller (ADF) and Phillips-Perron (PP) methods. The stationarity test results are presented in Tables A1 appendix. The results in Table A1 show that GDP per capita growth and value added tax were stationary at levels at 5 per cent significant level. For all the other variables, the null hypothesis for the presence of unit roots was accepted, thus, the variables were non-stationary at levels. Since most of the variables were non-stationary, it was necessary to difference them. At first differences, most macroeconomic data become stationary (Kelly & Mavrotas, 2003). The results in Table A1, in appendix indicate that apart from GDP per Capita and value added tax which were stationary at levels, other variables became stationary at 5 per cent after first differencing. Therefore, the

stationarity test revealed that GDP per capita and VAT were integrated of order zero, I(0), while foreign direct investment, inflation rate, trade balance, exchange rate, and real interest rate were all integrated of order one, I(1).

Table 4.2. Correlation analysis:

	GDP_GR	VATA	RIR	TB	INR	FDI	ER
GDP_GR	1.00000	0.21640	-0.10155	0.116961	-0.256089	0.071453	-0.024988
VATA	0.21640	1.00000	-0.04043	0.603337	-0.198257	0.168539	0.755897
RIR	-0.10155	-0.04043	1.00000	-0.177491	-0.591896	-0.219563	0.284890
TR	0.11696	0.60334	-0.17749	1.000000	0.208823	0.340335	0.451603
INR	-0.25609	-0.19826	-0.59190	0.208823	1.000000	0.276859	-0.147015
FDI	0.07145	0.16854	-0.21956	0.340335	0.276859	1.000000	0.137913
ER	-0.02499	0.75590	0.28489	0.451603	-0.147015	0.137913	1.000000

GDP growth model was tested for multicollinearity. This is because the multicollinearity affects calculations regarding individual predictors. Another feature of multicollinearity is that the standard errors of the affected coefficient tend to be large. In that case, the test of the hypothesis that the coefficients is equal to zero leads to a failure to reject the null hypothesis. Analyst may falsely conclude that there is no linear relationship between an independent and dependent variable. The multicollinearity test showed the tolerable levels of multicollinearity between explanatory variables. The multicollinearity problem is tolerable if the correlation coefficient between explanatory variables is close or less than 0.5. The pair wise correlations are low as it can be noticed from the correlation matrix table 4.1.

4.2.2   Serial correlation test

Table 4.3 Breusch-Godfrey Serial Correlation LM Test:

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.469158066795	Prob. F(2,21)	0.79282483144
Obs*R-squared	3.682359423938	Prob. Chi-Square(2)	0.58863017775

Another test that was performed is a serial correlation test. In regression analysis using time series data, autocorrelation of errors is a problem. Autocorrelation violates the OLS assumption that the error terms are uncorrelated. The standard errors tend to be underestimated and the t-scores overestimated when then autocorrelations of errors at low lags are positive. In this paper Breusch-Pagan-Godfrey serial correlation LM test was applied at 5 per cent level of significance. The results of the serial correlation test indicated that the test-statistic is equal to 0.5886 and that its probability is equal to 0.7928. The probability of the t-statistic is greater than 0.05. This led to the acceptance of the null hypothesis of no-autocorrelations. Hence, GDP growth model has no problem of autocorrelation of errors.

Another test performed was the specification test. The mis-specification of the model means the poor predictive power of that model. In this study Ramsey's RESET test was performed at 5 per cent.   The results of Ramsey's RESET test showed that the test-statistic is equal to 10.05532 and that its probability is equal to 0.0737. This probability is greater than 0.05 and this led to conclusion that GDP growth model is not mis-specified

The normality test was also performed. If the residuals from a linear regression are not normally distributed, they should not be used in Z tests or any other tests derived from the normal distribution such as t-test, F test and chi-squared test. If the residual are not normally distributed, then the dependent variable or at least one explanatory variable may have the wrong functional form or important variables may be missing. In this study Jarque-Berra test was applied. The results showed that the test-statistic is equal to 0.674810 and that its probability is equal to 0.713620. The probability of the test-statistic is greater than 0.05. This led to the acceptance of the null hypothesis of normal

distribution of the residuals. Thus, the residuals of GDP growth model are normally distributed.

4.3 EMPIRICAL MODEL RESULTS

Table 4.4: Empirical model results: first growth model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
VATA	4.94E-06	6.94E-06	0.71197	0.0484
D(RIR)	0.055197	0.13317	0.41448	0.6825
D(TB)	0.033981	0.06977	0.48703	0.6311
D(INR)	0.087222	0.11089	0.78656	0.4399
D(FDI)	0.719868	0.40888	1.76058	0.0922
D(ER)	-0.248456	0.07647	-3.24899	0.0037
C	3.86702	0.58778	6.57902	0

R-squared	0.380688	Mean dependent var	3.577124
Adjusted R-squared	0.211784	S.D. dependent var	2.198078
S.E. of regression	1.951487	Akaike info criterion	4.381565
Sum squared resid	83.78260	Schwarz criterion	4.711602
Log likelihood	-56.53270	Hannan-Quinn criter.	4.484929
F-statistic	2.253877	Durbin-Watson stat	1.478513
Prob(F-statistic)	0.025836		

Effects of VAT revenue on economic growth rate

The first objective of the study sought to establish the effects of actual vat revenue growth on GDP per Capita growth in Kenya. To achieve this objective, model 4 was estimated and the statistical significance of actual VAT revenue coefficient was tested using student t-test. The coefficient associated to actual VAT is positive and is equal to 0.000049. This coefficient has a t-statistic which is equal to 0.7117 and its probability is equal to 0.0484. Using 5 per cent level of significance, this probability is less than 0.05. This implies that actual VAT revenue coefficient is statistically significant at 5 per cent level of significance. Empirically, the sign of

actual VAT revenue is positive. In this case the coefficient is positive but has a very small effect. The implication of this is that an increase in the VAT revenue collected by one per cent improves GDP per capita by 0.000049 per cent in short-run. This explains that any change in VAT revenue will at first in the immediate period cause GDP per Capita to change in the same direction but infinitesimally.

Other Findings from the Regression Results

The regression results in table 4.4 show that coefficient of real interest rate is positive and not statistically significant. This coefficient is equal to 0.05. This implies that a unit percentage increase in real interest rate leads to insignificant improvement in GDP per capita short-run. This is as per theory the sign should be positive as an increase in interest rate should improve the welfare of citizens. The coefficient of trade balance which is exports to imports ratio is positive and not statistically significant. This coefficient is equal to 0.03. This implies that a unit percentage increase in trade balance leads to 0.03 per cent improvement in GDP per capita in the short-run. This is as per theory the sign should be positive as an improvement on trade balance should improve GDP per capita of a country. The coefficient of inflation rate is positive though not statistically significant in this study. It is equal to 0.08. This implies that a unit increase in GDP per capita will lead to an inflation rate increase of 0.08 percent. This is against theory that it should be negative. Such can be attributed to a direct relationship between inflation and GDP. The exchange rate coefficient is negative at -0.248 and it is statistically significant at 5% level of significance. The implication of this is that appreciation of real exchange rate by one per cent improves GDP per capita by 0.248 per cent in short-run

The estimated results in table 4.4 have an adjusted R-squared of 0.211 per cent. This implies that 0.211 per cent of the variation in GDP growth rate are explained by the explanatory variables used in the model. The F-statistic is 2.253 and the probability of not rejecting the null hypothesis that there is no statistically significant relationship between the dependent variable and independent variables is 0.0258(prob<0.05). This implies that GDP growth rate model is statistically significant at 5 per cent level of significance.

Table 4.5: Empirical results for vat reforms model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP_GR	2945.227	2561.26	1.14992	0.2606
GDP_GR(-1)	1069.254	2542.72	0.42052	0.6776
DUMMY	42217.77	3725.37	11.3325	0.0000
C	-26991.74	11698.3	-2.30732	0.0293

R-squared	0.842143	Mean dependent var	64795.95
Adjusted R-squared	0.823929	S.D. dependent var	62151.87
S.E. of regression	26079.44	Akaike info criterion	23.29925
Sum squared resid	1.77E+10	Schwarz criterion	23.48607
Log likelihood	-345.4887	Hannan-Quinn criter.	23.35902
F-statistic	46.23539	Durbin-Watson stat	0.623771
Prob(F-statistic)	0.000000		

The second specific objective was to analyze the effects of regressive tax reforms on economic welfare. Model 6 was estimated and the statistical significance of GDP per capita and the dummy variable coefficient were tested using student t-test. The lag of GDP per capita coefficient was positive at 1069.25. This implies that GDP per capita growth had much share on the VAT revenue that has been collected during the period. The dummy variable coefficient was 42217.77 and was statistically significant at 5% level of significance. This is a clear indication that reforms are generally needed to the tax system in order to improve the welfare of citizens.

The estimated results in table 4.3 have an adjusted R-squared of 0.8421 per cent. This implies that 84.2 per cent of the variation in VAT growth rate are explained by the explanatory variables used in the model. The F-statistic is 46.2353 and the probability of not rejecting the null hypothesis that there is no statistically significant relationship between the dependent variable and independent variables is 0.0000(prob<0.05). This implies that VAT model is statistically significant at 5 per cent level of significance.

4.3 Discussion

Our findings have support from several researchers such as Barro (1992), Bassanini and Scarpetta (2001), Lee and Gordon (2005), Padovano and Galli (2007) Muriithi and Moyi (2003), Adari's (1997) among others. Barro (1992) and Bassanini and Scarpetta (2001) both found that foreign direct investment positively impacts economic growth in the long run. Less foreign direct investments attainment will thus lead to slower growth. Foreign investments accumulation has the potential to increase the earning power of those who invest in it. From an investment perspective progressive taxation decreases the marginal benefit received from foreign direct investment (Heckman et. al 1998). It makes the investment decision less appealing and can thus deter students from pursuing higher education. Caucatt et Al (2002) find that greater tax progressivity has the potential to decrease foreign direct investment. From our study foreign direct investments positively affect the GDP per capita growth rate. this is in support to past findings.

Lee and Gordon (2005) studied the effects of tax structure of GDP growth. They begin their discussion by analyzing other factors that affect the GDP growth rate per

capita which are not accounted for in the neo-classical framework that may potentially affect economic growth. They find that tax is negatively correlated with economic growth using cross section data from 70 countries from 1970 to 1997. Lee and Gordon's regression result predicts that a ten percent decrease in the tax rate will lead to a 1.1% increase in GDP growth. According to them their result suggests that taxing deters individual units from making more investment decisions that lead to greater economic growth. This study found out that GDP growth rate will increase by 1% when VAT changes by 71%.

Padovano and Galli (2007) examine the effects of tax rates on economic growth in 23 OECD countries from 1950 to 1990. They find that higher marginal tax rates and tax progressivity are negatively correlated with long-run economic growth. Padavano and Galli explain that these results contradict previous literature that tax structure and economic growth are not significantly correlated because their regression depended on marginal tax rates, not the previously erroneously used average tax rates. These results suggest that the effect of progressivity must be judged based on the socioeconomic specific effects of the tax schedule not just the total amount of revenue collected. This study shows positive relationship between the variables in the study and economic growth.

Adari's (1997) study focused on the introduction of value added tax (VAT) in Kenya that replaced sales tax in 1990. The study analyzed the structure, administration and performance of VAT. The estimated buoyancy and elasticity coefficients were less than unity implying a low response of revenue from VAT to changes in GDP. from our study, The coefficient associated to actual VAT is positive and is equal to 0.000049. This coefficient has a t-statistic which is equal to 0.7117 and its

probability is equal to 0.0484. Using 5 per cent level of significance, this probability is less than 0.05. This implies that actual VAT revenue coefficient is statistically significant at 5 per cent level of significance. Empirically, the sign of actual VAT revenue is positive. In this case the coefficient is positive but has a very small effect. The implication of this is that an increase in the VAT revenue collected by one per cent improves GDP per capita by 0.000049 per cent in short-run

Chipeta (1998) evaluated 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. The study concluded that the tax bases had grown less rapidly than GDP. This study has focused on Kenya. In this study however, the statistical significance of GDP per capita and the dummy variable coefficient were tested using student t-test. The lag of GDP per capita coefficient was positive at 1069.25. This implies that GDP per capita growth had much share on the VAT revenue that has been collected during the period. The dummy variable coefficient was 42217.77 and was statistically significant at 5% level of significance. This is a clear indication that reforms are generally needed to the tax system in order to improve the welfare of citizens.

Kusi (1998) studied tax reform and revenue productivity of Ghana for the period 1970 to 1993. Results showed 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 study concluded that the reforms had contributed significantly to tax revenue productivity from 1983 to 1993. the current study results have also concluded that reforms contributed significantly to the improvement of economic welfare. Muriithi and Moyi (2003) applied the concepts of tax buoyancy and elasticity to determine whether the tax reforms in Kenya achieved

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the objective of creating tax policies that made yield of individual taxes responsive to changes in national income. The results showed that tax reforms had a positive impact on the overall tax structure and on individual tax handles. This positive relation is in line with our findings in this study.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Summary

This study explored the effects of regressive taxes on GDP growth rate in Kenya. The objectives of the study were to establish the effects of regressive taxes on GDP growth rate in Kenya, model the relationship between regressive taxes and GDP per capita as a measure of Economic welfare in Kenya, and to provide policy implications of the study's findings.

Based on dummy technique model, a reduced form of growth model was specified and estimated using OLS method. The regression results showed that GDP growth rate improves when VAT improves in the short-run. Further, the regression results showed that VAT increase is inelastic to GDP growth rate.

5.1 Conclusion

Indirect taxation in Kenya is imperative. The introduction of tax reforms is significant in increasing the growth rate of GDP. Value added tax as a measure of indirect taxes is the most effective tax to introduce the reforms. It is the most effective source of generating income for enhancing economic growth in Kenya. Thus, the favorable tax structure is the one that gives weight to indirect taxation policy in Kenya.

This study has examined the effect of regressive tax revenue reforms on the welfare of people in Kenya by using dummy variable technique for the period of 1983-2013. Therefore, it is expected that the VAT tax will be the pillar of the future resource mobilization strategy of Kenya. Tax reforms, therefore, have improved the overall tax system. The decomposition of elasticity shows that the tax to base and base to income

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elasticity has not been approximately equal for regressive Due to this, the overall tax structure of Kenya is elastic despite the poor performance of regressive tax reforms.

5.2 Policy Recommendation

Even though VAT has positive contribution for the country, Kenya, economy development, it has certain pitfalls that needs due consideration. As a result, in order to overcome the shortcomings (regressivity of VAT tax levy), the researcher forward the following recommendation for the tax authority, government of Kenya.

The State should allocate more VAT revenue to sectors in which VAT had contributed the least as compared to other economic variables considered in the study. Although the other factors contributed positively to the GDP growth rate, the effects of such contributions were statistically significant only exchange rate as a factor that influences GDP. This makes it necessary for increased allocation to such sectors where the contribution effects were insignificant.

Like any other tax, VAT is creating tax cascade effect on the taxpayers in the country. So that, in order to eliminate or reduce this problem, the prevailing VAT tax rate should be adjustment (down ward) from the existing tax rate, 16%, by taking the prevailing rate as a nominal tax rate and determining the real tax rate to be levied on the goods and services and also introducing different tax rates based on the demand elasticity as well as consumption patterns the poor though it create complexity to tax authority and revenue productivity of the government. But how much and how to adjust the VAT to the real VAT rate needs further study so that the paper is not going to talk about the adjustment of the VAT rate.

Moreover, the regressivity of VAT can be reduced if the government implemented subtraction method instead of credit method even though subtraction method is difficult from the administration point of view. Under a subtraction method, the tax base for each firm is receipts from sales of real goods and services, minus purchases of real goods and services (including capital goods) from other businesses. In other word, under this approach, VAT tax is applied only on the values added by each stage of production and distributions channels unlike credit approach which applies VAT tax on the selling price of the goods and services. Even if both approach will come up with the same amount of tax, if applied properly, in Kenya context, the businessmen do not know how much value they added on the product they are selling since they don't have proper accounting records and educational background so that they will added the VAT input tax on the as a purchase price while determining their selling price. As a result they create tax cascading even though they are refunded for the input tax.

Alternatively, instead of reducing tax rate or introducing different tax rate, it should be better to spend to tax revenues on basic social activities which induce economic growth and also benefits more the poor people, such as health and education sectors. Since reductions in overall tax revenues have resulted in a fiscal squeeze which can mean the reduction of needed public services with adverse effects in the short-term on the poor and low- income and in the long-term on overall social and economic development, so that it is better to spend the tax revenue on basic activities such health, education, agriculture and infrastructure since expenditure policy is much more important for redistribution purposes than is an income tax; that consumption taxes can be progressive; and that greater fiscal decentralization (moving tax and

expenditure authority to lower levels of governments) may enable better matching of those who benefit and those who pay for government activity.

The government should grant zero rates on important farm products. In some VAT jurisdictions a "downstream" extra credit is granted to firms that, buying from the farmers, are subject to tax, just to make up for this break in the tax credit chain, but the size of that credit does not vary with the amount of fertilizer the farmer buys, so does not influence such a purchase. A better method is to zero-rate important farm inputs, such as seed, fertilizer, and tractors.

Moreover, the government should grant zero rates on some basic food items. In some developing countries, many people are on so meager a diet and in such poor health that their ability to work is impaired. If their incomes after tax were increased, the resulting increase in their consumption spending might so increase their productive energy as to make the resulting increment in output exceed the increment in their consumption. Such an increment may be called gainful consumption. A decrease in the VAT on such consumption would spur more consumption, hence a more than equivalent increase in total output. This road to economic growth, which calls for zero rating of certain necessities, seems obvious.

5.3 Limitations of the Study

The major limitation encountered in carrying out this study was unavailability of data from one source. The data for some of the variables were collected from different sources. Unavailability of data for VAT, exchange rate and trade balance variables for a long period was a limiting factor to the choice of the sample period.

5.4 Suggestion for Further Researches

Further researches should be conducted using alternative econometric techniques for example the divisia index approach to investigate whether it gives similar results as compared to the current results. In addition, further researches should be conducted to investigate the effects of direct taxes on other macroeconomic variables other than economic growth.

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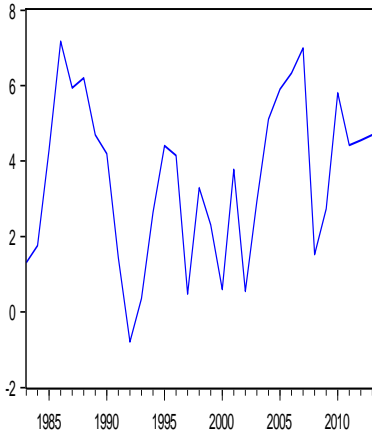St   Catherine's College.

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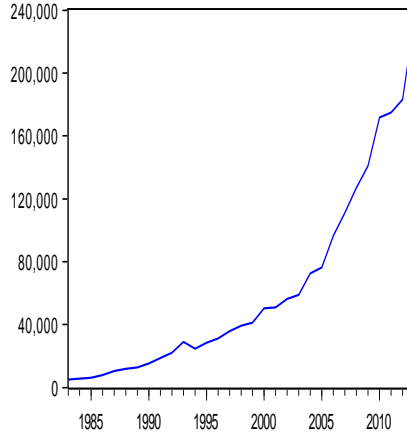Taxation. National University of Singapore.

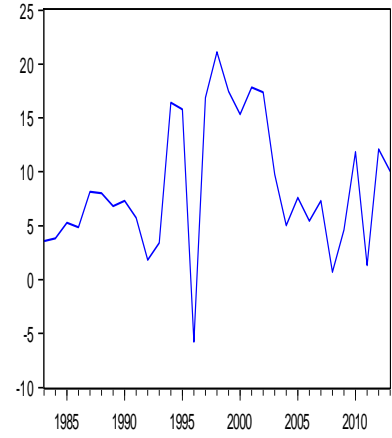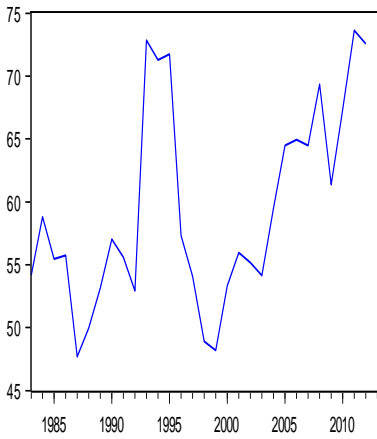## Appendices

TIME TRENDS OF VARIABLES

GDP GR

vat actual

RIR

TR

inflation rate
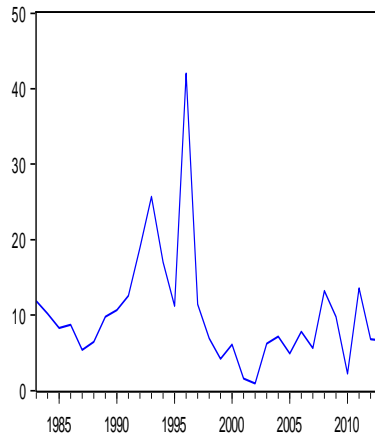
FDI as %of GDP
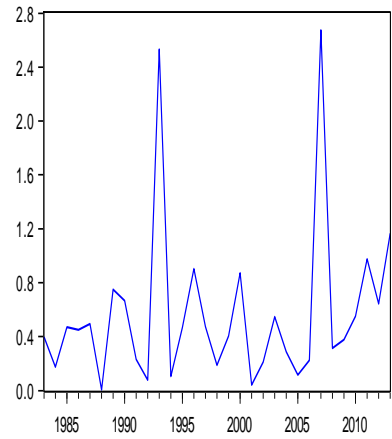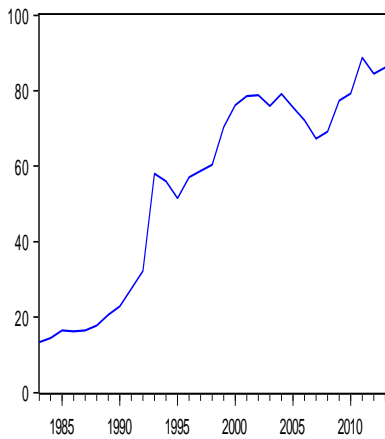

exchange rate

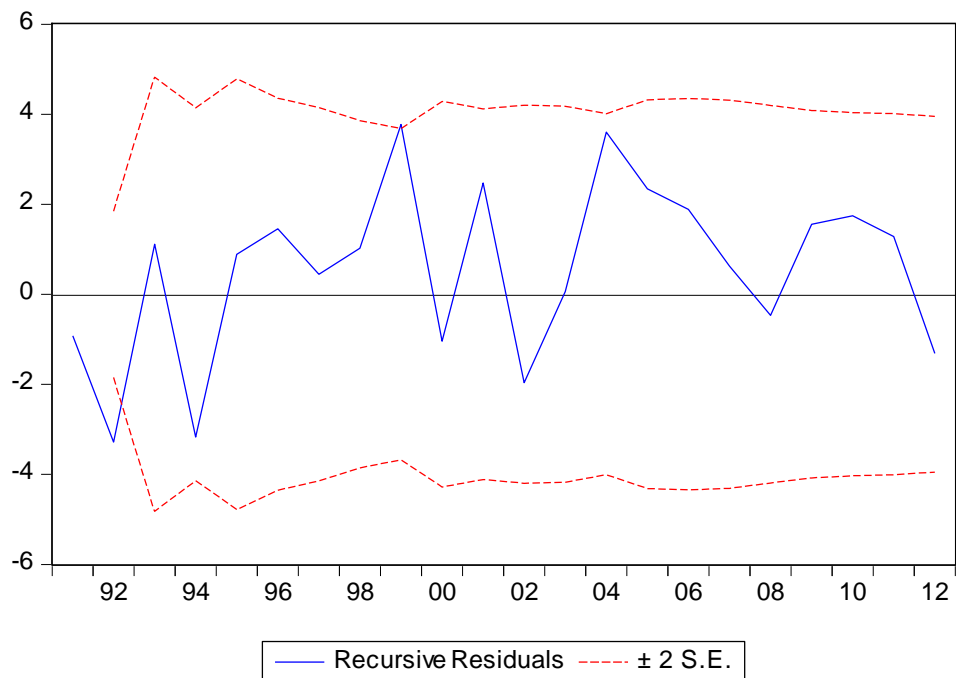**Stability test results**

Ramsey RESET Test
Equation: EQ01
Specification: GDP_GR VATA D(RIR) D(TR) D(INR) D(FDI) D(ER) C
Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.536283	21	0.5974
F-statistic	0.287600	(1, 21)	0.5974
Likelihood ratio	0.394467	1	0.5300

Impulse response functions

Stationarity test: table A1

Variable	Type of the Test and test statistic					Conclusion
		ADF Test		**PP Test**		
		Test statistic	**Critical value**	**Test statistic**	**Critical value**	
GDP_GR per capita	Level	**3.1169**	**-1.9524**	**2.5483**	**-1.9524**	stationary
VAT revenue	Level	**6.5187**	**-1.9533**	**20.5638**	**-1.9524**	stationary
Foreign direct investment (FDI)	Level	**-0.3003**	**-1.9538**	**-3.8752**	**-1.9524**	Non -stationary
	1st Difference	**-6.7836**	**-1.9538**	**-**	**-**	Stationary
Inflation rate	Level	**-1.3714**	**-1.9529**	**-1.9340**	**-1.9524**	Non -stationary
	1st Difference	**-6.4855**	**-1.9533**	**-8.5460**	**-1.9529**	Stationary
Trade balance(TR)	Level	**0.3338**	**-1.9529**	**0.9558**	**-1.9528**	Non -stationary
	1st Difference	**-5.6212**	**-1.9533**	**-5.7309**	**-1.9533**	Stationary
real exchange rate(ER)	Level	**1.5091**	**-1.9524**	**1.4326**	**-1.9524**	Non -stationary
	1st Difference	**-4.4613**	**-1.9529**	**-4.4662**	**-1.9529**	Stationary
Real interest rate(ir)	Level	**-0.6077**	**-1.9533**	**-1.5838**	**-1.9524**	Non -stationary
	1st Difference	**-7.4147**	**-1.9533**	**-10.9267**	**-1.9529**	Stationary

Actual fitted graph
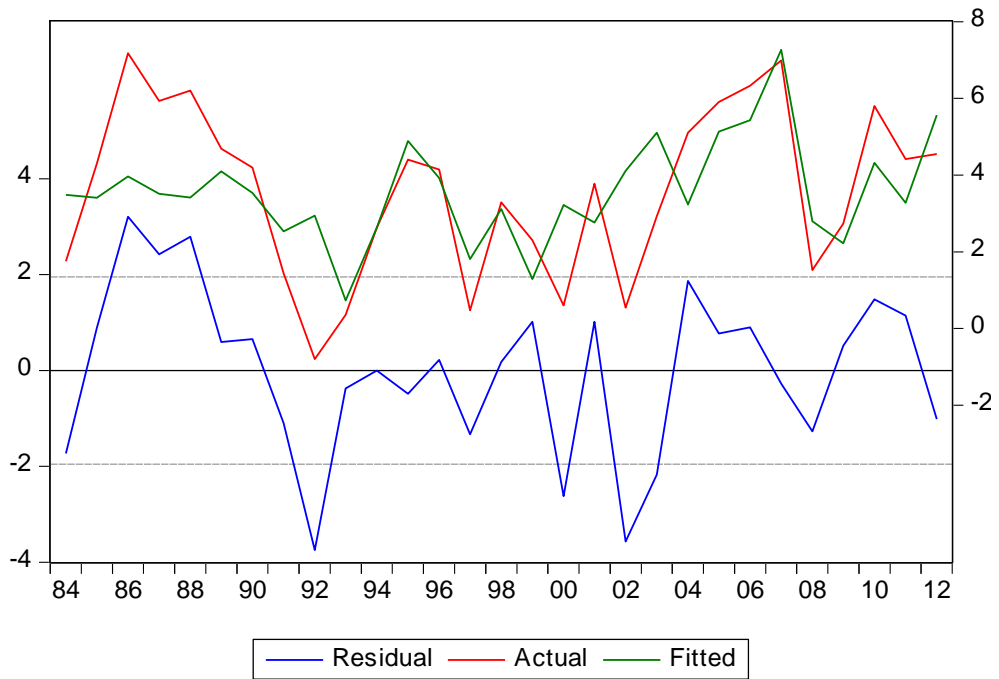
Table A2: Raw Data

	GDP	VATA	IR	INR	TR	ER	FDI	PC	RIR	VALUE ADD	CGDP	GDP GR	Dummy 1	Dummy 2	dummy 3	dummy 4	dummy y5
1983	327.781	5074.4	15.83	11.84	54.16	13.31	0.40	2.06	3.57	5218984564	79592200000	1.30905	0	0	0	0	0
1984	326.855	5471	14.42	10.19	58.80	14.41	0.17	1.57	3.84	5378428771	89242600000	1.755217	0	0	0	0	0
1985	312.056	6065.86	14.00	8.31	55.45	16.43	0.47	1.94	5.26	5384467613	100811600000	4.300562	0	0	0	0	0
1986	354.993	7950.4	14.00	8.71	55.74	16.23	0.45	2.04	4.86	6304747241	117460200000	7.177555	0	0	0	0	0
1987	377.078	10399.14	14.00	5.40	47.70	16.45	0.49	2.07	8.16	6865274375	131155800000	5.937107	0	0	0	0	0
1988	381.578	11765.68	15.00	6.46	49.97	17.75	0.00	3.01	8.03	7139418835	148283780000	6.203184	0	0	0	0	0
1989	365.431	12806.9	17.25	9.77	53.16	20.57	0.75	3.16	6.82	7124692550	170404100000	4.690349	0	0	0	0	0
1990	365.615	15321.42	18.75	10.64	57.02	22.91	0.67	4.64	7.33	7351364840	196433610000	4.192051	1	0	0	0	0
1991	336.323	18555.4	19.00	12.53	55.60	27.51	0.23	5.34	5.75	7044823637	224230069300	1.438347	1	0	0	0	0
1992	327.880	22142.72	21.07	18.90	52.93	32.22	0.08	6.60	1.83	7078612300	264471872712	-0.79949	1	0	0	0	0
1993	222.600	28994.34	29.99	25.70	72.86	58.00	2.53	9.36	3.41	4891408457	333611292400	0.353197	1	0	0	0	0
1994	268.378	24533.86	36.24	17.02	71.27	56.05	0.10	11.75	16.43	6031423178	400657837200	2.632785	1	0	0	0	0
1995	329.940	28403.72	28.80	11.22	71.75	51.43	0.47	11.61	15.80	7656381024	465250740000	4.406217	1	0	0	0	0
1996	427.367	31328	33.79	41.99	57.31	57.11	0.90	12.28	-5.78	10773587262	687998000000	4.146839	1	1	0	0	0
1997	453.148	35656	30.25	11.44	54.06	58.73	0.47	13.36	16.88	11752892135	770313000000	0.474902	1	1	0	0	0

Year																	
1998	474.510	39263	29.49	6.93	48.90	60.37	0.19	14.04	21.10	12520594964	850808200000	3.290214	1	1	0	0	0
1999	423.117	41212	22.38	4.19	48.19	70.33	0.40	14.53	17.45	11446570542	906927630000	2.305389	1	1	0	0	0
2000	406.116	50426	22.34	6.08	53.31	76.18	0.87	15.46	15.33	11275508926	967836930000	0.599695	1	1	0	0	0
2001	404.216	50899	19.67	1.57	55.95	78.56	0.04	15.90	17.81	11543229626	1020221000000	3.779906	1	1	0	0	0
2002	398.410	56326	18.45	0.93	55.17	78.75	0.21	15.96	17.36	11668863692	1035373000000	0.54686	1	1	0	0	0
2003	439.596	58773	16.57	6.20	54.13	75.94	0.55	17.13	9.77	13248876743	1131782000000	2.932476	1	1	1	0	0
2004	462.050	72656	12.53	7.13	59.48	79.17	0.29	18.63	5.05	14308393833	1274329000000	5.1043	1	1	1	0	0
2005	523.614	76185	12.88	4.90	64.48	75.55	0.11	19.87	7.61	16697013692	1415725000000	5.906666	1	1	1	1	0
2006	612.233	96573	13.64	7.79	64.94	72.10	0.23	22.03	5.43	20029088424	1622567000000	6.330633	1	1	1	1	0
2007	721.459	111008	13.34	5.61	64.48	67.32	2.68	23.51	7.31	24005773896	1833513000000	6.993285	1	1	1	1	1
2008	785.734	126878	14.02	13.21	69.35	69.18	0.31	28.59	0.71	26862788708	2107460000000	1.526949	1	1	1	1	1
2009	771.288	141041	14.80	9.74	61.36	77.35	0.38	31.34	4.62	26890095528	2375971000000	2.735286	1	1	1	1	1
2010	792.979	171679	14.37	2.25	67.35	79.23	0.55	32.05	11.86	28178558494	2570334000000	5.802908	1	1	1	1	1
2011	816.442	174788	15.05	13.54	73.61	88.81	0.98	35.43	1.33	29307340422	3047392000000	4.420654	1	1	1	1	1
2012	932.518	183219	19.72	6.82	72.57	84.53	0.64	37.97	12.08	35982779249	3403534000000	4.552554	1	1	1	1	1
2013	994.305	233558	17.31	6.59		86.12	1.17	39.56	10.06		3797988000000	4.687291	1	1	1	1	1