

THE EFFECT OF PERSONAL AND CONSUMPTION TAXES ON INCOME  
DISTRIBUTION IN KENYA.

BY  
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## **DECLARATION**

This Research Project is my Original Work and has not been Submitted for a Degree in any other University or Institution.

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## **DEDICATION**

I would like to dedicate this study to my late father Mr. Samuel.K. Mwangi, who inspired and taught me the virtues hard work and perseverance. I will forever be grateful to you. To my mother Fracha.Gathoni, your encouragement, support and prayers kept me going. I am truly indebted.

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## **ABSTRACT**

The objective of this study was to investigate the effect of taxes on distribution of income in Kenya. The population of the study consisted of all households in Kenya. A total of 13,158 were considered in the study in line with Kenya Integrated Household Budget Survey (KIHBS) data 2005/2006. The KIHBS data are a stratified random sample consisting randomly selected clusters across all districts in Kenya and comprising 8,475 rural and 4,683 urban households resulting in a total sample size of 13,158 households. The records consist of data on household expenditures.

Secondary data collected was analyzed using descriptive statistics particularly the sum, mean, median, standard deviation range, correlations, and linear regression analysis. This was achieved through the use of MS Excel and statistical packages for social scientist (SPSS) to generate frequency distributions and percentages to assist the researcher in answering the research questions. The output was presented in form of tables and figures

The key results indicate that although 64.4% of the sampled population was rural households, 64.4% of gross household income belonged to urban households, and whereas the urban households paid more taxes in total for both PAYE and VAT, rural household paid more excise tax than urban households. Distribution of income was highly skewed with the upper deciles having over 51.5% of total gross income while the lower decile only had 1.1% of total gross household income. The overall redistributive effect of taxes was 8.7% with PAYE contributing the highest redistributive effect of 8%.

Households in rural areas generally paid less in taxes compared to their urban counterparts except for excise tax where they paid slightly more. Further, households in the upper quartile paid a higher proportion of their income as taxes compared to households in the lower decile. The researcher concludes that taxes aid in redistributing income, with income taxes being the most effective in achieving this objective, while the redistributive effect of consumption taxes being very minimal and negative.

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## **LIST OF ABBREVIATIONS**

CIF	-Cost Insurance & Freight
CIT	-Corporate Income Tax
EAC	-East Africa Community
GDP	-Gross Domestic Product
GPT	-Graduated Personal Tax
IEA	-Institute of Economic Affairs
ILO	-International Labour Organization
IMF	-International Monetary Fund
KIPPRA	- Kenya Institute for Public Policy Research and Analysis
KNBS	- Kenya National Bureau of Statistics
KRA	-Kenya Revenue Authority
MDGs	-Millennium Development Goals
NI	-Net Income
OECD	-Organization for Economic Cooperation and Development
PAYE	-Pay as You Earn
SID	- Society for International Development
SPSS	-Statistical Software for Social Scientists
VAT	-Value Added Tax
WHT	-Withholding Tax



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# CHAPTER ONE

## INTRODUCTION

### 1.1 Background to the Study

In the modern society, governments in both developed and developing countries collect taxes to fund public services and although tax systems are among the oldest institutions, they remain fundamental to the functioning of any economy. Economists define taxation as a compulsory contribution of resources from the private to the public sector or government, levied on a basis of predetermined criteria and without reference to any specific benefit received by the tax payer. (Barnett & Grown, 2004) Posit that besides taxation, developing countries in particular, get revenue from other sources, including non-tax revenue such as licenses, fees and price charged for services rendered by ministries, department and agencies, as well as income from sale of government assets and privatization. Moreover, many developing countries are dependent on foreign aid as an external source of revenue.

Taxation is the main 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 averaging about 24% of the size of the economy, thus enabling the government to finance about 60% of the annual budget (Mutua, 2011). This is lower than in OECD countries whose tax revenue accounts for about 36% of GDP on average and obtained mainly through taxes on incomes and consumption (Davies, Zeng, & Zhang, 2009). Due to its importance, tax policy debates and decision making becomes a critical issue to the public, to businesses and the economy at large owing to the varied impact that it has have on each of these entities. The design and performance of the tax system has implications for inequality and as such it is the role of the government to ensure that it pursues a fair tax system for equitable distribution of income and welfare of the citizens

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 which include equity, certainty, convenience and economy. 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. Analysis of the effects of tax policy is therefore critical for government decision makers and the public in making informed policy decisions (Mutua, 2011).

Most economists agree that the most appropriate way to measure the burden or incidence of taxes is in terms of their effect on the distribution of income. There is so little dispute, in fact, that incidence is usually defined simply as the effect of taxes on the distribution of income available for private use (Smith, 1975). This study aimed at assessing the redistributive effects of government intervention on household income. Specifically, analysis was made on the changes in household income brought about by personal and consumption taxes on households.

### **1.1.1. Personal Income Taxes**

Personal income taxation is among the oldest and commonly used instruments of fiscal policy. Besides partly fulfilling the government expenditure needs income tax is also aimed at redistributing income in the society. They are transformed in to progressive structures so that principles of fairness are fully accomplished, hence setting a just tax base is of critical importance in order to observe the ability to pay principle. Most developing economies have inelastic tax structures with a narrow tax base and high administrative costs, which makes it easy to evade these taxes (Vaqr & Cathal, 2009). However the overall role of personal income taxation cannot be completely discarded. This is because apart from the distributional impact of these taxes, there are incentive effects as well, which can for instance impact the tax payer's decision and manner of participating in the labour market.

A personal income tax is a tax that is levied directly on the wages and salaries of specific individuals. It falls sometimes on the income of the household and sometimes separately on each member of the household. It varies with the size and source of the taxpayer's income and various other characteristics set out in law (Trevor & Anderson, 2010). In Kenya, the legislation that enabled taxation of income was enacted in 1974 after the dissolution of the East African Community (EAC) Management Act (Mutua, 2011).The administration of personal income taxes

falls under the responsibility of the Commissioner of Domestic Taxes and is governed by the Income Tax Act of Kenya, Chapter 470.

Most personal income tax revenue is received through withholding at source. Income from wages and salaries is generally deducted at source and remitted directly to the Kenya Revenue Authority by employers on a monthly basis while tax on interest and dividends is withheld at source by financial institutions and companies who also pay to the Kenya Revenue Authority. Personal income taxes have been one of the major revenue earning sources for Kenya for many years, in fact PAYE comprises the largest share of total income tax (over 50%) as shown in figure 1.0 below. It is also easy to collect and administer (Mutua, 2011).

### **1.1.2. Consumption Taxes**

Consumption taxes form an important source of revenue for an increasing number of governments, accounting for almost 31% of all revenue collected by governments across the OECD. Value added taxes (VAT) are the principal form of taxing consumption in most of the OECD member countries and account for two thirds of consumption tax revenues. The remaining third is made up of specific consumption taxes such as excise duties (OECD, 2012), a situation which is replica of the consumption taxes in Kenya as shown in table 1.0 below.

The intellectual arguments for consumption tax can be traced back to Thomas Hobbes who opined that equality of imposition consists rather in the equality of that which is consumed, than of the riches of the persons that consume the same. The argument was based on the logic that the state provides protection for the enjoyment of life and that taxes are the price of that protection. Because consumption is the material manifestation of the enjoyment of life, so should consumption be the base of taxation (Cordes, Ebel, & Gravelle, 2005).

Value Added Tax is an indirect tax levied on the consumption of goods and services, and it is charged at each stage of production and distribution chain up to the retail stage. It is also levied on imported taxable goods and services. VAT was introduced in Kenya in 1990 under Chapter 476 of the laws of Kenya as a broad-based tax levied on the consumption of not only locally manufactured and imported goods, but also on services with a view of generating substantial

revenue. Although Kenya experienced revenue shortfall at the initial introduction period, VAT performance has subsequently contributed to improved revenue collection at lower administrative and compliance cost. Indeed, the importance of VAT is evidenced by the fact that it accounts, on average, for 28% of total tax revenue, coming second after income tax (Mutua, 2011).

Excise tax is a levy that is applied selectively on particular goods and services. 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). While the main purpose of excise duties was originally to raise revenue, they are also used to discourage consumption of certain products considered as harmful. In recent years, excise duties have increasingly been used as a means of influencing consumer behaviour in a number of areas. The case put forward in relation to alcoholic beverages and tobacco products is that drinking and smoking are health hazards and increased excise duties help to reduce consumption. For mineral oils, reasons for determining consumer behaviour reflect a mixture of energy conservation, transport and environmental issues (OECD, 2012). Over the last decade, environmental issues have also played an increasing role in determining the nature and application of excise duties and taxes on motor vehicles.

### **1.1.3. Income Distribution**

In economic analysis, income distribution is interpreted in two principal ways: the functional distribution of income which is the distribution of income among factors and the size distribution of income or distribution of income among persons. The functional approach focuses on basic economic concepts such as employment of the factors of production and the rates of remuneration for their services. In personal distribution, key decisions that determine incomes in the long run can each be analyzed as particular cases of the household's optimization problem. A description of the system of property rights that prevails within the community is also considered (Cowell, 2007). The question of who owns the natural resources, the capital equipment and the profits of the firms is central to the determination of household incomes. The evolution of property rights across the generations is also necessary. This depends on among other things,

how families are formed, the motives for bequeathing wealth to the next generation and the role of the state through taxation.

Two of the most important goals of government policy are to address inequalities in the distribution of income and to improve the welfare of poor people. Research on fiscal incidence therefore enables us to understand how government policies affect the distribution of income, how equitable those changes may be and, in particular, how government policies actually help poor people. Establishing the incidence of taxes is important because those people who actually bear the burden of taxes generally differ from those who legally are liable to make payment to the tax authorities (Blanca & Wodon, 2007). Major tax reforms and large government expenditure programs are undertaken routinely in many countries with specific redistribution objectives, including lifting tax burdens borne by lower-income groups and directly helping poor people.

The extent to which the distribution of income or, in some cases, consumption expenditure among individuals or households within an economy deviates from a perfectly equal distribution is measured by Gini index, thus a Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality. In scenarios of moderately changing inequality, national accounts based projections suggest that poverty declined from 47 percent in 2005 to somewhere in the range of 34 and 42 percent in 2011 in Kenya. Inequalities in Kenya are manifested in different forms. Differences in share of income and social services are observed across regions, genders and even specific segments of the population. For instance, the country's top 10% households control 42% of total income while the bottom 10% control less than (Society for International Development (SID), 2004).

As economic growth increases, poverty decreases and as inequality worsens, poverty increases, however, while growth is a necessary condition for poverty reduction, growth alone may not lower poverty. Owing to both the lack of data and political resistance, inequality is not a well-studied subject in the Kenya, largely due to the fact that the first two regimes did not stomach much discussion of inequality. In fact until around the year 2000, no major national level studies on inequality had been published by the government or other entities in the country. This was

despite the fact that the Kenyan government's earliest economic policy was supposedly aimed at growth with equitable distribution of income (Society for International Development, 2010).

#### **1.1.4. The Effect of Personal and Consumption Taxes on Income Distribution**

Intense debate still exists over the relationship between income distribution, taxes, welfare spending and economic growth. One view is that growth is precipitated by welfare spending which reduces income inequality, with the opposing view being that unproductive welfare spending results in tax increases thus hurting the economy. The need to determine the effectiveness of government interventions for distribution of income is critical whatever the relationship maybe. For instance, active redistribution policies would be highly recommended if income inequality increases, whereas intervention may not be necessary if income inequality decreases. The government should therefore find a cost effective way to reduce income inequality in case of fiscal stress (Sung & Park, 2011).

Personal income tax structures contain a tradeoff between efficiency and equity which is considered conventional wisdom in the public finance literature. While efficiency is best achieved by the use of simple lump sum taxes that do not distort the choices that people make, vertical equity generally requires graduated tax schedules accompanied by individual specific deductions, allowances, and credits, which are distortionary. As such, taxes that are efficient are thought to reduce equity and vice versa. Underlying this tradeoff is the presumption that a higher level of tax progressivity reduces income inequality (Denvil & Klara, 2012).

Progressive taxes are often designed to collect a greater proportion of income from the rich relative to the poor, thus reducing the inequality of disposable income compared to taxable income. However, as the government increases structural progressivity or tax rates facing the rich relative to the poor, individuals may respond by taking steps to reduce their taxable income. Reducing taxable income is achieved by either working less or simply through tax evasion/avoidance. While both behavioral responses are likely to reduce observed income inequality, they can have a differential effect on true income inequality (Denvil & Klara, 2012). Although we expect the productivity response from more progressive taxes to reduce actual



inequality, the evasion response may increase actual disposable income of the rich thus increase inequality in actual net income.

Since the VAT base is consumption, and consumption decreases as a proportion of income as income rises, its distribution effect is perceived to be regressive with respect to income. Authors have pointed to the consideration that possible adverse distribution effects of the VAT are not prohibitive in reflection of its positive characteristics. Thus the VAT is preferred over the income tax in particular economic environments and for specific reasons such as its revenue productivity, its simple structure and legal interpretation if appropriately designed, its ease of administration, and the lower likelihood of its evasion in contrast to that of the income tax (Shome, 2009). In a case of fiscal emergency, it can be more easily increased in terms of the tax rate since the impact is likely to be less directly observable on incomes and, usually, it can be more quickly implemented than any change in the income tax which may require a longer legislative process. Thus, the VAT remains a more popular tax among policymakers.

The broad methodology used in the tax incidence analysis can generally be divided into three basic approaches as stated in Shome (2009); first, partial-equilibrium or micro-data based incidence analysis such as Pechman and Okner, 1974, Musgrave, Case and Leonard, 1974. Static computable general equilibrium (CGE) models such as Harberger, 1962, Shoven and Whalley, 1984 and quite recently dynamic computable general equilibrium models following either the overlapping generation life cycle approach or the neoclassical growth model such as Kotlikoff and Summers, 1987, Kotlikoff, 2001.

### **1.1.5. Kenyan Tax System**

Kenya's dependency on foreign aid and borrowing has drastically declined over the last decade, averaging about 11% of the total budget relative to the East Africa Community member states, whose budgets are financed to the tune of 30-40% by development partners (Mutua, 2011). According to (Barnett & Grown, 2004), tax policy is at the heart of the political debate on the level of public services that should be provided and who should pay for them because taxes are the principal source of recurring revenue under government control. Besides, taxes are used to assist in the redistribution of wealth and incomes and to regulate economic activities. Following

the promulgation of the new Constitution of Kenya in August 2010, the tax system would henceforth reflect a two-tier system of government, national and county government, where some fiscal (government finances) power and responsibilities have been delegated to the county government by the national government. National Government taxes include Income Tax, Value added tax (VAT), Excise tax and Custom duty/Import duty while County Government taxes include property tax, Entertainment tax and other taxes. (Mutua, 2011)

Taxes in Kenya are broadly classified according to impact of tax, base of tax and rate of tax. Under the impact of tax, taxes can either be direct or indirect taxes. Direct taxes are those that are paid personally by taxpayers, or which employers pay directly to the agency mandated to collect taxes on behalf of Treasury. These are worked out as a percentage of income (Mutua, 2011). Direct taxes include income tax deducted from salaries, from royalties or trades, and corporate income tax. Indirect taxes, on the other hand, are not borne by the person who has the responsibility of surrendering to Kenya Revenue Authority (KRA), rather they are often transferred to a third party. The classic example of indirect taxes is consumption taxes which include Value Added Tax (VAT), excise duty, trade taxes among others. This study focused mainly on VAT, Excise tax and Pay as You Earn (PAYE).

## **1.2 Research Problem**

The Millennium Development Goals (MDGs) and the Economic Recovery Strategy calls for Kenya to implement a growth strategy that impacts factor incomes and ensures their equitable distribution. Kenya's policy makers need to ensure that pro-poor growth strategies not only focus on economic growth but also incorporate income redistribution policies to achieve the desired results (Bigsten & Levin, 2002) . For most Third World or developing countries, such as Kenya, development strategies are founded on growth strategy or distribution of factor incomes, which in turn affect poverty alleviation. Past efforts by the Government to redistribute income have proved futile due to, among other things, lack of proper institutions and mechanism to guarantee deliberate government effort targeted especially at the poor (Mwende, 2008). The distribution of factor incomes and its effect on economic, social and political development of the country has been a key aspect since 1963.

The evidence of widening income disparities has heightened economic profession's interest in the role of fiscal policy as a distributive instrument in the short run and the long run as well as in the progressivity or lack of tax and transfer policies. At the same time, questions have been raised on the effectiveness of tax and transfer policies as a redistributive tool (Chu, Davoodi, & Gupta, 2000). Noting that the poor rarely pay income taxes and that education and health spending and other in kind benefits account for a large share of budgets, many have argued that the expenditure side of the budget should be to raise revenues needed to finance pro-poor and other essential government expenditures and to avoid generating horizontal inequities

Mukuthuria (2010) using income level as a proxy for poverty to determine whether people are poor or not, found out that the size of land and education level had significant relationship to poverty level in Uringu, a division of Meru-North District. Further, income inequality in Kenya was found to be more pronounced in rural than in urban areas, with urban areas having higher overall survival probabilities, than the rural areas (Omondi, 2008). The redistributive effect of social security reform in urban China increased the income of low income and older age groups hence reducing relative poverty rate (Lixin & Hiroshi, 2013). However, the redistributive effect did not offset the expanding income inequality, which resulted in the Gini coefficient of redistributed income in 2002 being higher than that in 1995.

The informal sector in Kenya which is estimated at about 20 per cent of GDP with a tax potential of about 4% and generating 80.5% of total employment in Kenya remain highly unregulated (KNBS, 2008). This raises the equity concern particularly with regard to personal income taxes, which are only paid by regulated economic sectors such as formal workers. Furthermore, consumption taxes such as VAT have been criticized as being regressive since the poor pay more, as a percentage of their income, than the rich, therefore the level and structure of taxes determines the level of disposable income and the distribution of after tax income (Peter, 1969). Taxes also have a distributive impact on the level of effective demand and employment. However some taxes distort the allocation of resources and lead to inefficiencies.

Although the relationship between income distribution and the redistributive effect of fiscal policy including taxes is a major concern for policy makers, and the public in general, there is

little empirical work investigating this relationship. Furthermore, there is even less evidence on the specific channels for redistributing income. With 45.9% of Kenyans living below the poverty line (World Bank, June 2008), the fiscal policy should aim at remedying this situation, which brings to fore the following question; To what extent do personal and consumption taxes aid in redistributing income Kenya?

### **1.3 Research Objectives**

The objective of the study was to determine the effect of personal and consumption taxes on distribution of income in Kenya.

### **1.4 Value of the Study**

Few studies have been done on this topic in Kenya with most research covering the relationship between poverty and inequality. Although inequality has remained high since independence, the government has in the past decade embarked on implementing various policy initiatives aimed at redistributing income in Kenya, which this study seeks to assess their impact. The results of the research provide great insight to the Kenyan government, policy makers and regulatory bodies such as Kenya Revenue Authority in formulating policies that will improve the welfare of all Kenyans.

To the Kenya citizens, this study highlight how taxes levied on them and government expenditure on social programs affects their overall income level hence informing better public participation on policy issues. To the researchers and academicians, the study adds to the existing literature in this field which will form a good literature base for review in future. Researchers will also have the opportunity to carry out further research based on the findings of the study.

# CHAPTER TWO

## LITERATURE REVIEW

### 2.1 Introduction

A review of past literature is a crucial endeavor for any academic research. The need to uncover what is already known in the body of knowledge prior to initiating any research study should not be underestimated. This chapter reviews literature on income distribution and tax. It is organized as follows; Section 2.2 presents the theoretical literature, while section 2.3 highlights the determinants of income distribution. Section 2.4 deals with the empirical literature and section 2.5 captures a summary to the chapter.

### 2.2 Theoretical Literature

Contemporary circumstances have played a major role in the emergence of the interest in the distribution of wealth in society. The modern debate began in the late 19th century. Free trade and the integration of global markets characterized the few decades before the World War I. Economics as a discipline was dominated by classical liberalism (Jani, 2006). The liberal view on distributional debate is that voluntary exchanges in free markets yield socially optimal outcomes and any attempts to regulate these only decrease social welfare. This view was challenged during the Great Depression and World War II. Mass unemployment and large-scale government intervention in economic affairs reshaped societies as well as economic theories.

The theoretical approach adopted in this study defines and explains the various economic theories or models that economists have used to explain the factors that really determine the distribution of income in a country and a methodological view of approaches related to tax incidence analysis. Distribution policies are studied for their macroeconomic effects on the economy and these theories attempt to explain what is important or necessary to improve the distribution of incomes in a country. Classical economists recognized land, labour and capital as the three main factors required in all production which corresponded to three social classes which were landowners, workers, and capitalists. The classical economists wanted to figure out what share of national income went to each class. Marx's Theory for Social Inequality also

called the theory of class and social inequality focus basically on why inequality exists in societies and whether such inequality is inevitable and was developed as a rebuttal to classical theories. The basic idea in neoclassical distribution theory is that incomes are earned in the production of goods and services and that the value of the productive factor reflects its contribution to the total product. Examples of classical and neoclassical theories are discussed below.

### **2.2.1 Marginal Productivity Theory of Distribution**

Derived from the assumption of individual maximization behavior and competitive markets, the hypothesis that production factors are paid their marginal products is one of the main ingredients of neo-classical economics. Marginal productivity theory of distribution also called the theory of factor pricing was developed by John Bates Clark in 1899 who opined that the distribution of the income in a society is controlled by a natural law, and that this law, if it worked without friction, would give to every agent of production the amount of wealth which that agent creates.

This theory states that input to production, whether capital or labour will continue to be added until the value of its marginal product (the revenue or yield resulting from the input) is equal to the cost of the input. It was originally developed to provide a rebuttal of Marx's theory of exploitation and an ethical basis for the distribution of income in a free enterprise economy. Based on the assumption of perfect competition, each factor's rate of remuneration equals the value of its marginal contribution to output (Tibor, 1964). The main propositions of this theory are that each agent of production creates a distinguishable share, and that each gets what it creates.

The theory is used to analyze the profit-maximizing quantity of inputs purchased by a firm in the production of output. Today however, we no longer seek ethical content in economic theories, and many have become reluctant to assume perfect competition; nevertheless, most people still adhere to the marginal productivity theory because it fits in best with marginalist approach to economics and the acceptance of the marginal productivity theory of income distribution is closely bound up with the assumption of an aggregate production function whose analytic

convenience has enticed many economists to slur over or disregard the objections to it (Tibor, 1964).

The critics of this theory argue that the theory merely attempts to justify the income distribution that the capitalist system yields, that it is a piece of pro-capitalist propaganda. According to this argument, when the theory claims that each factor is paid exactly its marginal revenue product, it's only a sneaky way of saying that each factor is paid exactly what it deserves, and that the theory legitimizes the past inequalities of the system which is characterized by poverty of many and the great wealth of few (Baumol & Blinder, 2012). However, economists find the principle just as relevant to organizing production in a socialist society as it is in a capitalist one. In the end, the theory offers some valuable insights into the way the economy works.

### **2.2.2 Keynesian Theory of Income Distribution**

The Great Depression is considered the epitome of an economic calamity. In the late 1920s and early 1930 production decreased rapidly, unemployment rates were at a spiraling level and people lived under deplorable conditions. Unsurprisingly, the economic system of the time was called into question. It is in this context that John Maynard Keynes main work “The General Theory of Employment, Interest and Money” was published. Keynes work challenged the classical-neoclassical doctrine which had been the economic paradigm marking the beginning of a major mutation of economics. Keynes did not actually refute the classical theory in its entirety, but approved of it, under the particular condition of full- employment (Tibor, 1964). Keynes provided a theoretical justification of interventionism which has influenced economic policy to an unprecedented extent.

Keynesian macroeconomics is a body of theory about how a market economy works that stresses its inherent instability and the need for active government intervention to achieve full employment and sustained economic growth (Bade & Parkin, 2009). Keynesian theory is an implicit theory, which links investment and income distribution by analyzing the latter's effect on the community's propensity to save, postulating the equality of saving and investment as an equilibrium condition, and tacitly taking for granted that a rise in investment will somehow redistribute income in favor of capital (Tibor, 1964). The central argument of The General

Theory is that the level of employment is determined, not by the price of labour as in neoclassical economics, but by the spending of money (aggregate demand). Keynes argues that it is wrong to assume that competitive markets will, in the long run, deliver full employment or that full employment is the natural, self-righting, equilibrium state of a monetary economy. On the contrary, under-employment and under-investment are likely to be the natural state unless active measures are taken. This theory has however been criticized for not applying equally to underemployment and full-employment situations.

Keynes emphasized the need for increased government spending to enable and amplify economic growth during periods of economic contraction, which occur when households don't spend enough on consumption goods and services and businesses don't spend enough investing in new capital (Bade & Parkin, 2009). This was balanced by the call for increased government savings when the economy returned to normal. The call for increased government spending focused on health, education, and other subsidizations, common areas for a strong social safety net for those affected most by the struggling economy. Although increased growth doesn't equal decreased poverty, Keynes supported greater income equality in the General Theory of Employment, Interest and Money. The theory postulated that such equality puts more money into the hands of people in lower income classes, who are more likely to spend it, which makes the entire economy more productive.

Keynes believed that after his cure for depression had restored full employment, two long term problems would arise. One is a slow rate of increase in real GDP hence a slow pace of improvement in the standard of living. The other would be persistent inflation leading to a continual rise in cost of living. Keynes suspected that with lower growth rate in real GDP, the pace of job creation would also slow. So a policy aimed at lowering unemployment in the short run might end up increasing in the long term (Bade & Parkin, 2009). Keynes believed that in the long run, all of us would be dead and won't be there to face the long term effect of his policies. By late 1960's through 1970's, Keynes predictions became a reality.



### **2.2.3 Kalecki's Theory of Income Distribution**

Kalecki's theory (1965) on income distribution relates distribution to the pricing behavior of firms in the industrial sector. The underlying assumptions put the economy in a state of underemployment and imperfect competition. In contrast to the primary sector of an economy, where price changes are determined by demand, prices in the industrial sector are determined by costs. Kalecki assumed that firms operate below full capacity, and unit variable costs are constant over the relevant range of output. Firms then impose a mark-up on unit variable costs, depending on their degree of monopoly. By aggregating the formula for the industrial sector as a whole, functional income distribution is determined by the average mark-up which is the degree of monopoly and the ratio of raw material prices to unit labour costs (Zdzislaw & Adam, 2004).

The theory states that profit share out of national income is a direct function of degree of monopoly power. To do this, Kalecki assumes that the industries compete in imperfectly competitive markets, more particularly in oligopolistic markets where the firms set a mark-up on its variable average costs in order to cover their overhead costs to obtain a certain amount of profit. The mark-up fixed by firms is higher or lower depending on the degree of monopoly, or the ease with which firms raise the price without reduction in the quantity demanded. Thus, income distribution is the result of the fight and strength of the two opposite classes (Tibor, 1964). But the class struggle manifests itself both in the labor market and in the market for commodities in general. The degree of monopoly reflects the relative force of capitalists and workers in these two markets.

Kalecki in 1991 highlighted four potential mechanisms that determine degree of monopoly. First, the mark-up is positively determined by the degree of economic concentration and hence price competition. Second, the degree of monopoly is positively related to non-price competition in the form of sales promotion and advertising. Mechanisms three and four are overheads related to prime costs and the power of trade unions. If overhead costs rise, and gross profits decline, tacit agreements become likely. As a result, prices in relation to unit prime costs might rise. Since interest and dividend payments can be considered as overhead costs, a permanent rise in interest payments and/or dividend payments might be passed on by an increase in the mark-up. Trade union power can have a negative impact on the mark-up. If strong trade unions push for higher

wages and firms want to maintain their profit margin, they can only do this by increasing their prices, thereby sacrificing their competitiveness (Dünhaupt, 2013).

Both Keynes and Kalecki shared the perception that in the simplest model (a one sector model without foreign competition), an increase in nominal wages will be passed on to prices and therefore does not change functional income distribution (Dünhaupt, 2013). Later in 1971, Kalecki presented a more complex view, showing that under certain circumstances wage increases will not be passed on to prices, but rather reduce profits. In an open economy, this is reasonable because, due to international competition, firms' ability to pass on higher costs is curtailed by the fear of losing competitiveness through an increase in prices

### **2.2.4 Kuznets Curve Theory**

The character of evolution of the distribution of income along an economy's development process has been a theme with a long history in economic enquiry. Simon Kuznets (1955) was the first to identify economic growth as a determinant cause of long term changes in the distribution of income by initiating the idea that the inequality characterizing income distribution exhibits a non-monotonic trend along the process of economic development. It appears to widen during a society's transition from a pre-industrial to an industrial system, then remains stable for a while and narrows as more mature stages of growth are reached (Maria & Theodore, 2012). This systematic evolution of income distribution along a country's development path became known as the *Kuznets Curve* –an inverted *U*-shape.

Owing much to the neo-classical theory of capital accumulation, Kuznets explained how economic growth shapes an income distribution. Kuznets proposed that at the early stages of economic development the income distribution becomes more unequal, but later the inequality diminishes forming an inverted U-curve. Kuznets observed that if inequality between low productivity sectors was more substantial than within each sector, then inequality would first rise, as people move across sectors, and then fall. Most of them will find themselves in the new sector, or the economy will reach a point where factor improvement will equalize returns across sectors (Tibor, 1964).

The logic behind the Kuznets's inverse U-curve is that at the early stages of economic development, an economy is based on agriculture. Due to low productivity the population stays poor and distribution of wealth is equal. Income inequality begins to rise with industrialization. Workers in the urban industrial sector are paid according to their productivity, which increases income inequality between the sectors. As the higher productivity raises wages and creates more wealth, the industrial sector expands and attracts more rural workers leading to rural urban migration. In the rural sector, however, migration eventually makes the workforce to be scarce, which increases the rural wages. As a consequence, the economy-wide income inequality diminishes gradually.

### **2.2.5 Partial Equilibrium Tax Incidence Analysis**

The tax incidence approach used for analysis fundamentally depends on the question being asked. If the question is distributional analysis, partial equilibrium tax incidence analysis is considered adequate. This approach examines the incidence of tax within the context of a single market and assumes tax imposed in one market does not affect other markets in terms of either price changes, factor shares or income. Since tax shifting within one market depends on elasticities of demand and supply. Thus, these models assume producer prices are fixed, which in this context means that increase in taxes correspond to an equal increase in consumer prices which is a fairly standard assumption also adopted in the literature of optimal taxation (Saadia, 2008).

As a consequence, tax incidence in partial equilibrium models depend entirely on assumption of how consumers will react to the imposition of a tax something which in the context of a perfectly competitive market is dealt by assuming different tax shifting assumptions for various types of tax. Partial equilibrium modeling of tax incidence is preferable because of its tractability and intuition. These models also provide a unique opportunity to disaggregate the incidence picture since they are based on rich micro-data and this ability to disaggregate is strength as it can provide very useful analysis as far as welfare and equity impact of a particular tax policy or a particular feature is concerned (Saadia, 2008). Various Conventional Models of Partial Equilibrium Tax Incidence have that been used include; Representative or typical household approach which one of the oldest approaches used for tax incidence analysis. This approach

relies on tax burden computation relying on a relatively small number of artificial households, and their composition, expenditure and income sources are assumed to be representative of the entire population. However, this type of analysis has been completely abandoned in favour of approaches that do not ignore individual variations.

Differential incidence approach compares the distribution of income resulting from the presence of tax with some initial benchmark or counterfactual. In this approach the result of income distribution due to taxes is compared with some initial benchmark distribution of income such as comparison with distribution of tax burden that would have taken place if the same amount of taxes were collected from a proportional income tax. Numerical Tax Incidence Approach is the most frequently used approach and is directly adopted from the seminal work of Pechman and Okner (1974). The objective is to allocate tax burden by income groups. The term numerical tax incidence refers to the procedure of imputing tax incidence where the total amount of tax revenue collected by the Government is allocated to the households grouped by income classes. As a result this approach assumes no excess burden or deadweight loss<sup>44</sup>. Thus, at the end the total burden allocated for each tax is equal to the total revenue collected.

## **2.3 Determinants of Income Distribution**

Economists and political scientists have raised a number of pertinent questions with regard to income distribution, for instance, what determines the distribution of income in a given country and at a given time? Can the distribution of income be changed through the intervention of the government? Often in the undemocratic societies of the past, the distribution of income was seen as an almost natural condition of society. However, in modern, democratic societies, in which most adult citizens, rich or poor, have the right to vote for those who will represent them in the government, there is less tolerance for, or acceptance of, high inequality. As a consequence policymakers are pressured to introduce policies intended to make the distribution of income or of consumption more equal. Over the years the focus of attention has shifted from the distribution of wealth to that of income and, more and more, to that of consumption (Afonso, Schuknecht, & Tanzi, 2008) .

In the Fourth Great Awakening and the Future of Egalitarianism (Fogel, 2000) argued that until the last third of the 19th century, the concern of economists had been with equality of opportunities. Then over the next hundred years the attention shifted to the equality of material conditions such as food, clothing and shelter. This objective could be achieved by taxing the rich with high and progressive income taxes while subsidizing the incomes or the consumption of the poor. However, progressively, because of the potential disincentive effects that taxes could generate and because of the concentration of income taxes on dependent workers, taxes lost some or much of their potential impact on income distribution. They acquired the characteristic reshuffling of income that changes only marginally the whole distribution. At the same time the income transfers that had been focused on the poor were largely replaced by universal entitlement programs, especially in health and education, which benefited all citizens and not just the poor.

The effect of income inequality on economic growth may differ in developed and developing economies, somewhat in line with the Kuznets curve, whereby inequality first increases and later decreases during the process of economic development (Barro, 2000). This research focuses mainly on the role that the government has played in promoting more income equality, than it would exist without its intervention, at a given time. It thus attempts to link policies at a given time with measures of income distribution at the same time. However, it must be recognized that past government policies have also played some role in determining the current income distribution. These policies have contributed to the determination of so-called initial conditions hence it may not be possible to isolate completely the impact of past and present public policy on income distribution.

At a given point in time, and in a given country, without the current intervention of the government, through taxation, spending policies, and regulations, the income distribution that would emerge would be largely determined by the following factors: The inheritance of tangible and financial wealth, the inheritance of human capital, including within the family learning as well as the inheritance of attitudes toward learning, work and risk. Societal arrangements and norms, such as whether individuals tend to marry individuals with similar wealth or educational background, Luck, Individual talent, work experience, and Past government policies.

In addition to the initial conditions mentioned above, that are largely determined by inheritance and societal traditions and norms, there are more individually-nested, or random factors, which also play important roles. These are the distribution of skills, intelligence, and even luck, or the role that randomness plays in determining incomes in non-traditional and market oriented economies. For instance, the chance that someone will end up with the skills or acumen of Tiger Woods, Bill Gates, or Warren Buffett cannot be determined by the initial conditions or by government policies.

In a market economy, individuals with exceptional skills in various areas such as entertainment, sport, economic or financial activities, and so on are more likely to end up with exceptional incomes. In many cases luck or randomness as a factor will also play a role. Some of these individuals may end up in the annual lists of the world richest individuals and will have an impact on Gini coefficients or on other measures of inequality (Afonso, et. al., 2008).

Initial conditions, exceptional skills, luck, and past public policies will combine with the working of the market to determine the distribution of income that prevails in a society before the current intervention of the government. Afterwards, to determine the distribution of spending power among the population the government steps in with taxes, public expenditures, tax expenditures, and some relevant regulatory policies. Relevant regulations will be those that control prices or rents, those that determine hiring quotas for some categories of individuals and those that establish property rights for patents or for other forms of intellectual property and so on. Much of the focus of this paper will be on the impact that tax systems can have on the after tax distribution of income and their impact on inequality.

The impact of the government on the income distribution may be direct or indirect. The direct and current impact of the government can come through taxes and through spending and other public policies. The level of taxation and its progressivity is the most direct factor. This factor, per se, can make the distribution of after-tax incomes different, and presumably more equal than the pre-tax distribution. However, various forms of “tax expenditures” that indirectly subsidize some categories of private spending such as education and health, will undoubtedly, over time,

have some impact on income distribution (Afonso, et. al., 2008). Through its features, the tax system can also influence the retirement age, the size of families, and individual effort, which are all features with a direct impact on income distribution.

In addition to the above, it has to be recognized that a good institutional set up that guarantees rule of law and fair and quick access to justice will also contribute to a better distribution of income by reducing abuses and corruption. Some studies have, for example, linked corruption with higher Gini coefficients, for instance You and Khagram as quoted by Rosen et al., (2008) found a positive correlation between inequality and corruption across countries.. When rule of law is not fair or is not respected, poorer people are more likely to be exploited through lower compensation for their work and higher costs for some services.

## **2.4 Empirical Literature**

A study on the changing income distribution in Pakistan by (Awan, 2007) indicated that overall, there was lesser inequality in terms of food expenditure, since it is a necessity for which both the rich as well as poor have to incur. Non-durable expenditure such as expenditure on medical care, education, and housing had a higher inequality as compared with food expenditure, which can be very harmful and concerning for the society. Income gaps attributable to education level were also significant. Therefore income inequality emanates from education distribution pattern, as well as the way the labor market compensates for education. Globalization and the introduction of new labor saving technologies have widened these gaps both in developed and developing countries. Anywhere in the world, higher wages are paid to workers who are more skilled than workers having little education.

Gender also plays a role in income distribution with women earning significantly less than their male counterparts, to the extent that more women tend to work in low-paying occupations as reflected in lower wages (Awan, 2007). Lower wages can be attributed to the fact that women acquire less cumulative work experience than men, as a result of breaks in their work histories owing to the demand of motherhood and housework traditionally assigned to them. The quality education was much lower for students from poor families, as majority were attending public school and did not have access to better quality private schools in Pakistan (Awan, 2007). The

difference in quality of education therefore strengthens the influence of the distribution of education and the structure of returns on income distribution. Of importance to note is that each incremental level of education diminishes probability of being poor thus education can bring masses out of the poverty web.

In a study to investigate the redistributive effect of social security reform in urban China using the urban household surveys of 1995 and 2002, Lixin and Hiroshi, (2013) found that the social security system in urban China had increased the income of low-income and older age groups and reduced the relative poverty rate. Public pension was the main source of income for the elderly in urban China with majority of people aged 60 and over receiving a pension. However, the redistributive effect did not offset the expanding income inequality, which resulted in the Gini coefficient of redistributed income in 2002 being higher than that in 1995. During 1995 and 2002, both low-income and high income groups received a positive net benefit from the social security system, but the net benefit increased with income. The Chinese social security system was found to lack progressivity in contribution, and did not favor the poor in terms of benefits. Social welfare policy can therefore reduce income inequality, but this would depend on the designation and quality of the program.

These results are consistent with the findings of (Lee, 2008) in which economic growth rate in GDP and government spending in social welfare per GDP were found to have negative relationships with income inequality. Both Social welfare policies which depend on the designation and quality on the program and economic growth rate in GDP can reduce income inequality hence the need to find the effective economic approach in boosting the economy. Using the Household Income and Expenditure Survey of 2007(Sung & Park, 2011) found that taxes and transfers reduced income inequality in Korea by 13.8 percent. Contrary to the popular belief that direct taxes are the key tool for redistribution, in-kind benefits, direct taxes, and social security contributions all decreased the Gini coefficient by 6.7, 4.7, and 2.9 percentage points, respectively, with the redistributive effect of consumption taxes being small and negative. Policy simulations indicated that education spending financed by the personal income tax has a positive redistributive effect and that the lower 70 percent of households enjoy positive net benefits. Spending targeting the poor therefore has a strong redistributive effect.



Omondi, (2008) using probit model to estimate parameters of an abbreviated social welfare function, which was proxied by child survival at the household level observed that income inequality in Kenya was more pronounced in rural than in urban areas. For the rural areas, Rift Valley Province registered the highest and Coast, the lowest inequality measure, while for the urban areas, Nairobi had the highest inequality measure. The urban areas had higher overall survival probabilities, than the rural areas. Further, Nairobi had the highest survival probabilities, and North Eastern, the lowest. Coincidentally, North Eastern also had the lowest income inequality, and Nairobi, the highest urban inequality. However, whenever these two indices were combined to measure welfare, Nairobi ranked the first on the welfare ladder while North Eastern ranked the last.

A study on effects of donor-funded Projects on welfare of the rural communities in the Elgeiyo Marakwet County by Tott (2013) reveal that the level of funding, stakeholder involvement, management and capacity building have an influence on the social economic welfare of beneficiaries. This therefore calls for stakeholder participation and robust information when formulating policies in order to increase productivity of the targeted groups and generally create sufficiency which is consistent with a study on poverty and inequality in Kenya by Njuguna (2005) who used stochastic dominance analysis to compare changes in poverty and inequality in Kenya between regions and their robustness. The influence of socio-economic factors on rural poverty in Uringu division of Meru - North District in Kenya with a specific focus on the influence of gender inequality, education, land ownership and the level of income on rural poverty by Mukuthuria (2010), highlighted the need to support Secondary and tertiary education in the area as a way of broadening opportunities for people and reducing overdependence on agriculture. Attainment of economic freedom by women through empowerment was also found to be a critical factor in alleviating rural poverty.

Access to education, formal employment, participation in business activities and marital status were the major factors that influenced women's socio-economic status in Kabarnet municipality in a study carried out by Kurui (2011). Therefore government intervention through subsidized education and loan funds can be critical in improving social economic status. To maximize social

and economic welfare, Governments need to perform various functions in the field of political, social and economic activities, hence impacting on economic growth. Revenues are raised mainly through taxation, and although all taxes have disincentive effects, taxes that reduce incentives to invest in human or physical capital and innovation are particularly damaging (Magu, 2013). Import duties were found to have an inverse relationship with economic growth while an increase in VAT had positive effects on the rate of economic growth.

Using a time series analysis for a period of thirty-one years (Otieno, 2009) analyzed the impact of indirect taxes as a whole and the different types of indirect taxes in particular, on economic growth within the context of a simple endogenous growth model. The study confirmed that indirect taxes cause distortions in the market decisions and consequently impact negatively on economic growth. The contradictory findings in the above two studies explains the need for further studies to establish how exactly indirect taxes impact economic growth.

## **2.5 Summary**

The analysis of income distribution and distributional implications of taxes and government policy is a subject to many conceptual and practical difficulties particularly with regard to whether income or consumption should be used and how the benefit of government spending should be valued. Studies show that before the effects of redistributive tax and transfer programs, income inequality in developing countries, on average is lower than industrial countries (Chu, Davoodi, & Gupta, 2000). However, while industrial countries improve income distribution effectively through taxes and transfers, developing countries do not have adequate redistributive programs to achieve a post tax, post transfer income inequality comparative to those of industrial countries.

Few studies have been done on the redistributive effects of government policy particularly taxes with most studies covering inequality, poverty and benefit incidence of policy initiatives in general. One of such study by (Suri, et al., 2009) show that poverty fell substantially and broadly across the Kenya in the period 1997-2007 with reduced inequality being the key reason that poverty fell even as real average per capita incomes also fell over the period. Studies done so far have not focused on how specific government policy initiatives affect the distribution of income

in Kenya. This study will fill this gap and make contribution to the existing literature on income distribution in Kenya.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter contains various sections. Section 3.2 deals with the research design, while section 3.3 highlights population and sample. It also includes section 3.4 that deals with data collection instruments. Section 3.5 covers data analysis and presentation.

#### **3.2 Research Design**

Both the diagnostic and descriptive approaches were adopted for the study. In diagnostic type of research design, the observation generally is recorded from the population and an association between the variables and the related hypothesis is tested through critical analysis in order to arrive at a conclusion. The diagnostic design was therefore adopted to estimate how and to what extent the redistributive policy through taxes in Kenya affect income distribution.

The descriptive approach provided the foundation to the study by clearly giving an in-depth profile and understanding on the two issues of tax and income distribution thus a descriptive approach enabled collection of in depth data on the population being studied and allow greater focus in giving specific and relevant recommendations. The study adopted the archival research strategy because government records and documents were the main source of data (Saunders, Lewis, & Thornhill, 2009).

#### **3.3 Population and Sample**

A population refers to the total collection of elements about which the researcher wishes to make some inferences (Cooper & Schindler, 2003). Since the archival research strategy was used, the data from Kenya Integrated Household Budget Survey (KIHBS) data was used to estimate the distributions of incomes and taxes and to analyze the redistributive effects of the government's fiscal policies. With a mean size of 5.1 members per household, a population 6,961,873 households was considered in the KIHBS study.

The KIHBS data are a stratified random sample consisting randomly selected clusters across all districts in Kenya and comprising 8,475 rural and 4,683 urban households resulting in a total sample size of 13,158 households. The records consist of data on various household expenditures.

### **3.4 Data and Data Collection Instruments**

Secondary compiled data was used for the study. Secondary data refers to the data that are in actual existence in accessible records, having been already collected and treated statistically by the persons maintaining the records while primary data refers to data that have been collected originally for the first time. The secondary data is obtained mainly from past published statistics, financial and economic reports and budget reports.

The data used in this study was collected and compiled by National Treasury and Kenya National Bureau of Statistics from records of household interviews, questionnaires and household expenditure diaries. Kenya Institute for Public Policy Research and Analysis and the Kenya Revenue Authority were good sources of relevant information. The data collected was checked for reliability, validity and measurability by comparing with published reports that used the same data to ensure that it is feasible to draw valid conclusions from the data (Saunders et al., 2009).

### **3.5 Data Analysis**

Data was tabulated and organized to make it easier to understand and analyze. For purposes of analyzing income distribution, the sample was divided into quartiles, each representing 20 percent of all the households in Kenya in ascending order from the lowest to highest household income. The data was then analyzed using Microsoft Excel and Statistical package for social sciences (SPSS). Measures of central tendency such as the mean, median, standard deviation and percentages were applied in analyzing the data.

Correlation analysis was used to show whether and how strongly taxes and household income are related while regression analysis was used to measure the nature of relationship between taxes and household income. The quantitative reports of household incomes and taxes obtained from the analysis were presented using charts, graphs and tabulations. The model applied in data

analysis is as given below. Y was the dependant variable,  $X_1$  to  $X_3$  were the independent variables.

### 3.5.1 Conceptual Model

$Y = f(x_1, x_2, x_3, x_4)$  is a linear regression model. (1)

Where Y is the dependent variable which is the Net household income per annum imputed from household expenditure and taxes paid.

And  $x_s$  are the independent variables where;

$X_1$  – Gross Household Income

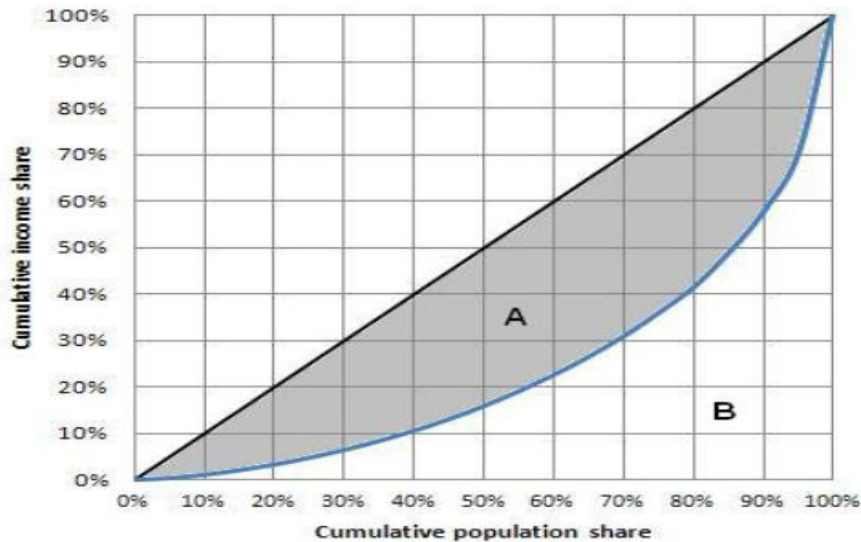
$X_2$  – PAYE amount payable per household per annum which is the difference between household expenditure and grossed up household expenditure

$X_3$  - Excise Tax amount payable per household per annum which was imputed from excisable expenditure.

$X_4$  - VAT amount payable per household per annum which was imputed from the expenditure by applying a 16 percent tax rate on vatable expenditure.

The Gini which is a measure of statistical dispersion intended to represent the income distribution of a nation's residents was used to measure of distribution of incomes among Kenya's households. It varies between '0' reflecting complete equality and '1' indicating complete inequality. The Gini can be calculated as a ratio of areas on the Lorenz curve diagram in which the population is ranked from poor to rich cumulatively on the horizontal axis while the vertical axis shows the cumulative income that these people earn. The curve that results from this is the Lorenz curve. Next to this curve a perfect equality line is drawn. The area between this perfect equality line and the Lorenz curve is A and the area under the Lorenz curve is B as shown in figure 3.1. The Gini coefficient is defined as  $G = A/(A+B)$ . Since  $A+B = 0.5$  then  $G = A/0.5 = 2A = 1-2B$  (Brakel, 2013)

Figure 3.1: Explaining Gini, Lorenz Curve



*Source: (Brakel, 2013)*

If  $X_i$  is a point on the horizontal axis, and  $Y_i$  is a point on the vertical axis then the area B can be approximated with trapezoids and

$$Gini = 1 - \sum_{i=1}^n (x_i - x_{i-1})(y_i + y_{i-1}) \quad (2)$$

The redistributive effects were measured in percentage terms by changes in Gini coefficients relative to the Gini of household Expenditure. The Gini estimates were derived through the addition and/or subtraction of tax components. The percentage changes in Gini denote marginal changes because of the inclusion/exclusion of each tax.

The household expenditure approach was used as a proxy for household income. Household expenditure is a function of income and transfers into the household and consumption in the household is also generally pegged to these variables. The main source of household income is salary & wage for those who are employed, business income for those running own businesses and agricultural income for those in the agriculture sector. Considering that household

expenditures are usually reported to be higher than income, capturing supplementary income and transfers to a household helps in understanding the magnitude of overall household expenditure patterns (Ministry of Planning and National Development, 2005/2006).

### 3.5.2 Analytical Model

The analytical model is based on the fact that the disposable income is arrived at after deducting from gross income all the applicable income. This is consistent with conventional models of partial equilibrium tax incidence (Saadia, 2008). The analytical model for this study is as summarized below;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon \quad (3)$$

Where

$Y$  = Net Income available for private use which was imputed from household consumption expenditure and taxes paid.

$X_1$  = Gross household income

$X_2$  = PAYE amount payable per household per annum which is the difference between household expenditure and grossed up household expenditure

$X_3$  = Excise Tax amount payable per household per annum which was imputed from excisable expenditure.

$X_4$  = VAT amount payable per household per annum which was be imputed from the expenditure by applying a 16 percent tax rate on vatable expenditure.

$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$  the parameters to be estimated

$\varepsilon$ - The stochastic error term

Since net income is obtained by deducting taxes from gross income and tax can only be levied if one has income, then hypothetically,  $\beta_0$ , and  $\beta_1$ , will be positive while  $\beta_2, \beta_3, \beta_4$  will be negative. Excel and SPSS were used to estimate the above linear regression.



## CHAPTER FOUR

### DATA ANALYSIS, RESULTS AND DISCUSSION

#### 4.1 Introduction

This chapter presents, interprets and discusses the findings in relation to the research question. Section 4.2 captures the summary of statistics, 4.3 Empirical Model, 4.4 Discussion and 4.5 Summary, 4.6 Implications for policy and practice.

#### 4.2 Summary of statistics

A total of 13,158 household were considered in the analysis. This was in line with data collected for the Kenya Integrated Household and budget survey (KIHBS) that was conducted by the ministry of planning and national development in the 2005/2006. Expenditure approach was used to estimate household income since data on household income is not readily available hence total household expenditure equals total disposable household income.

Table 4.1 Income range and disposable income among decile group

No. of Households		Decile Group	Income Range (Kshs. Per Annum)	Total Disposable Income <sup>1</sup>	Percentage Share of Total Income	Mean income per household	Median income per household
Rural	Urban						
1,194	122	1st	0 to ≤ 41,200	36,754,574	1.30%	27,929	29,604
1,113	203	2nd	41,200 to ≤ 60,351	67,128,037	2.40%	51,009	51,041
1,059	256	3rd	60,351 to ≤ 78,673	91,469,016	3.20%	69,558	69,732
990	326	4th	78,673 to ≤ 97,681	115,430,799	4.10%	87,713	87,586
911	405	5th	97,681 to ≤ 119,191	142,414,081	5.00%	108,217	108,121
857	459	6 <sup>th</sup>	119,191 to ≤ 146,025	173,159,889	6.10%	131,580	131,060
790	526	7 <sup>th</sup>	146,025 to ≤ 185,570	216,491,826	7.60%	164,507	163,787
682	633	8 <sup>th</sup>	185,570 to ≤ 247,510	280,571,945	9.80%	213,363	211,531
572	744	9 <sup>th</sup>	247,510 to ≤ 379,571	397,127,339	13.90%	301,768	296,246
307	1,009	10 <sup>th</sup>	379,571 to ≤ 13,094,966	1,328,053,504	46.60%	1,009,159	590,974
8,475	4,683	Total	1,095,981,027	2,848,601,010		216,492	119,201

Source: KNBS

<sup>1</sup> Household expenditure is a function of income and transfers into the household and consumption in the household is also generally pegged to these variables. Since household expenditures are usually reported to be higher than income, the expenditure approach helps in understanding the magnitude of overall household expenditure patterns.

Table 4.1 summarizes the number of Rural and urban households, the income range, share of total disposable income, the mean and the median of disposable income of each household per decile group. Decile groups were obtained by arranging disposable income in ascending order and dividing it into ten equal deciles of 1,316 households each.

Table 4.2: Gross Household Income per decile group for rural and urban households

No. of Households <sup>2</sup>		Decile Group	Total Gross Income-Rural Households	Total Gross Income-Urban Households	Total Gross Income	Share of Total Gross Income
Rural	Urban					
1,190	126	1 <sup>st</sup>	33,033,775	3,767,505	36,801,280	1.10%
1,106	210	2 <sup>nd</sup>	56,089,885	11,075,374	67,165,259	1.90%
1,057	258	3 <sup>rd</sup>	73,247,778	18,302,835	91,550,613	2.60%
981	335	4 <sup>th</sup>	85,645,013	29,900,565	115,545,578	3.30%
910	406	5 <sup>th</sup>	98,010,786	45,055,005	143,065,791	4.10%
864	452	6 <sup>th</sup>	125,968,735	67,377,336	193,346,071	5.60%
796	520	7 <sup>th</sup>	147,500,794	97,757,633	245,258,427	7.10%
682	633	8 <sup>th</sup>	166,337,414	155,183,275	321,520,689	9.30%
572	744	9 <sup>th</sup>	199,917,903	269,033,269	468,951,172	13.50%
317	999	10 <sup>th</sup>	247,962,737	1,538,146,264	1,786,109,001	51.50%
8,475	4,683	Total	1,233,714,820	2,235,599,060	3,469,313,880	
		Gini	29.34%	73.92%	58.07%	

Source: KNBS

Table 4.2 summarizes the gross household income between rural and urban household for each decile group and the corresponding Gini coefficient. Gross household income was arrived at by adding back to disposable income PAYE tax that was deducted from earnings of household income using graduated income tax schedules. Personal tax relief was granted to one household member on the assumption that tax would be levied on highest income earner per household.

<sup>2</sup> The income under a particular analysis is arranged in an ascending order. The population is then divided into ten equal proportions (deciles) each consisting of 1,316 households for both rural and urban households. The number of households in rural and urban households therefore varies according to the income being analyzed since different taxes have different effect on households. The income within a particular decile is summed up to arrive at the total income of that decile group.

Table 4.3: Net Income after Personal Taxes for rural and urban households

No. of Households		Decile Group	Net Income after PAYE- Rural	Net Income after PAYE Urban	Total NET after PAYE
Rural	Urban				
1,194	122	1 <sup>st</sup>	33,161,459	3,593,115	36,754,574
1,113	203	2 <sup>nd</sup>	56,564,377	10,563,660	67,128,037
1,059	256	3rd	73,549,965	17,919,051	91,469,016
990	326	4th	86,697,919	28,732,880	115,430,799
911	405	5th	98,347,276	44,066,804	142,414,081
857	459	6 <sup>th</sup>	112,553,464	60,606,425	173,159,889
790	526	7th	129,795,995	86,695,831	216,491,826
682	633	8th	145,797,470	134,774,475	280,571,945
572	744	9th	170,914,187	226,213,152	397,127,339
307	1,009	10th	188,598,914	1,139,454,590	1,328,053,504
8,475	4,683	Total	1,095,981,027	1,752,619,984	2,848,601,010
		Gini	24.67%	71.36%	53.40%
Percentage change in Gini			15.9%	3.5%	8.0%

Source: KNBS

Table 4.3 summarizes household income after PAYE tax of rural and urban household for each decile group and the corresponding Gini coefficient. Income after personal tax was obtained by deducting PAYE from gross household income using graduated scale. In this study, the aggregate of total expenditure constituted what was available for expenditure by households.

Table 4.4: Net income after Excise tax for rural and urban households

No. of Households		Decile Group	Excise Tax Rural	Excise Tax Urban	Net Income after Excise Tax Rural	Net Income after Excise Tax Urban	Total Net Income after Excise Tax
Rural	Urban						
1,195	121	1st	160,436	8,558	33,060,487	3,543,370	36,603,857
1,112	204	2nd	225,957	35,697	56,296,096	10,573,916	66,870,012
1,061	254	3rd	278,185	79,064	73,429,237	17,685,668	91,114,905
986	330	4th	291,630	92,773	86,067,377	28,993,989	115,061,366
913	403	5th	415,056	197,090	98,211,102	43,709,516	141,920,618
859	457	6th	416,512	167,648	125,891,933	67,341,425	193,233,358
791	525	7th	666,228	318,069	146,637,814	97,615,530	244,253,343
677	638	8th	649,919	349,345	165,362,367	155,321,768	320,684,135
574	742	9th	426,232	630,067	201,645,745	266,034,902	467,680,647
307	1,009	10th	421,838	969,888	243,160,670	1,541,930,777	1,785,091,447
8,475	4,683	Total	3,951,992	2,848,200	1,229,762,828	2,232,750,860	3,462,513,688
		Gini			29.09%	74.13%	58.13%
Percentage change in Gini					0.85%	-0.28%	-0.10%

Excise tax is levied on what the government considers to be luxury and although expenditure on durable assets such as motor vehicles are excisable, such information is not readily available hence the only excisable expenditure considered in this study was on Tobacco and Narcotics whose tax rate was 130%. Table 4.4 summarizes Net household income after Excise tax of rural and urban household for each decile group and the corresponding Gini coefficient.

Table 4.5 VAT amount and net income after VAT for rural and urban households

No. of Households		Decile group	VAT Rural	VAT Urban	Total VAT	Income NET VAT-Rural	Income NET VAT Urban	Total Income Net VAT
Rural	Urban							
1,192	124	1 <sup>st</sup>	907,536	148,576	1,056,112	32,183,853	3,530,837	35,714,689
1,100	216	2 <sup>nd</sup>	1,734,688	542,610	2,277,298	54,027,272	10,859,192	64,886,465
1,062	253	3rd	2,378,166	878,154	3,256,321	71,162,351	17,075,653	88,238,004
983	333	4th	2,868,981	1,488,181	4,357,162	82,916,352	28,183,421	111,099,773
928	388	5th	3,537,360	2,086,378	5,623,738	96,382,896	40,324,594	136,707,491
842	474	6 <sup>th</sup>	4,060,003	3,201,662	7,261,665	119,425,414	67,276,448	186,701,862
799	517	7th	5,238,167	4,353,555	9,591,722	142,902,274	92,775,460	235,677,734
679	636	8th	6,031,418	7,100,180	13,131,598	159,688,766	148,834,023	308,522,790
575	741	9th	7,439,276	11,970,510	19,409,786	193,599,151	255,714,943	449,314,094
315	1,001	10th	9,853,960	70,516,315	80,370,274	237,376,935	1,468,738,369	1,706,115,304
8,475	4,683	Total	44,049,556	102,286,120	146,335,676	1,189,665,264	2,133,312,940	3,322,978,204
		Gini				29.16%	73.97%	57.93%
Percentage change in Gini						0.61%	-0.07%	0.24%

Source: KNBS

Table 4.5 illustrates the distribution of income among population deciles after VAT and the corresponding Gini coefficient, for instance the poorest 90% of the population had 48.66% of total income hence the richer 10% of the population had 51.34% of total income.

Table 4.6: PAYE, VAT and Excise Tax amount and Net Income per decile group

Decile Group	Gross Income	PAYE Tax Amount	Excise Tax Amount	VAT Amount	Total Taxes	NET Income after All Taxes
1 <sup>st</sup>	36,801,280	-	178,141	1,070,852	1,248,992	35,552,288
2 <sup>nd</sup>	67,165,259	-	260,257	2,273,939	2,534,196	64,631,063
3 <sup>rd</sup>	91,550,613	-	396,693	3,287,985	3,684,678	87,865,935
4 <sup>th</sup>	115,545,578	603	444,410	4,375,077	4,820,090	110,711,544
5 <sup>th</sup>	143,065,791	26,264	558,174	5,778,066	6,362,503	136,061,864
6 <sup>th</sup>	193,346,071	2,802,820	632,737	7,178,691	10,614,249	165,455,206
7 <sup>th</sup>	245,258,427	10,416,406	983,776	9,588,613	20,988,796	205,919,327
8 <sup>th</sup>	321,520,689	22,764,631	918,762	13,090,500	36,773,893	266,410,436
9 <sup>th</sup>	468,951,172	53,358,298	1,171,443	19,445,479	73,975,221	376,625,647
10 <sup>th</sup>	1,786,109,001	440,024,592	1,255,799	80,246,474	521,526,866	1,246,231,831
Total	3,469,313,880	529,393,614	6,800,193	146,335,676	682,529,483	2,695,465,141
Gini	58.07%	53.40%	58.13%	57.93%		53.01%
Percentage change in Gini		8.04%	-0.10%	0.24%		8.71%

Source: KNBS

Table 4.6 summarizes the taxes paid by each decile group, the net income after all the taxes and the corresponding Gini coefficients. Figure 4.1 provides the composition of each tax to the total taxes paid.

Figure 4.1. Composition of taxes paid to total tax

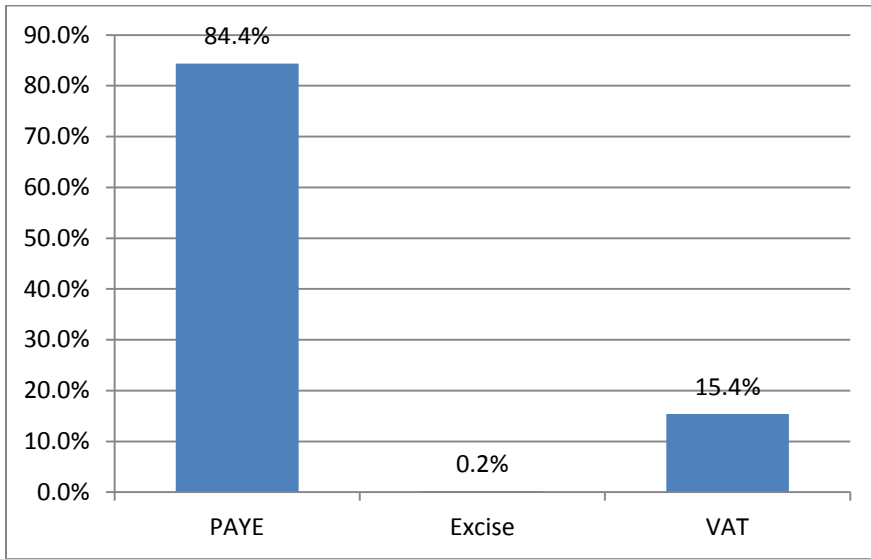


Table 4.7 Taxes paid as percentage of gross Income.

As a Percentage of Gross Income			
Decile Group	PAYE	Excise Tax	VAT
1 <sup>st</sup>	0.00%	0.50%	2.90%
2 <sup>nd</sup>	0.00%	0.40%	3.40%
3 <sup>rd</sup>	0.00%	0.40%	3.60%
4 <sup>th</sup>	0.00%	0.40%	3.80%
5 <sup>th</sup>	0.00%	0.40%	4.00%
6 <sup>th</sup>	1.40%	0.30%	3.70%
7 <sup>th</sup>	4.20%	0.40%	3.90%
8 <sup>th</sup>	7.10%	0.30%	4.10%
9 <sup>th</sup>	11.40%	0.20%	4.10%
10 <sup>th</sup>	24.60%	0.10%	4.50%

Table 4.7 summarizes the taxes paid as a percentage of gross income for each decile group. For instance, the 10<sup>th</sup> decile paid 24.6% of their gross income as PAYE, 0.1% as excise tax and 4.5% as VAT.

### 4.3 Regression Analysis

Table 4.8: Correlations

Correlations					
	Gross Income	PAYE	Excise Tax	VAT Amount	Net Income
Gross Income	1.000	0.995	0.055	0.959	0.999
PAYE	0.995	1.000	0.045	0.957	0.991
Excise Tax	0.055	0.045	1.000	0.072	0.051
VAT Amount	0.959	0.957	0.072	1.000	0.951
Net Income	0.999	0.991	0.051	0.951	1.000

Table 4.8 summarizes the variables of the study. There is perfect positive linear relationship between PAYE and gross income, hence the higher the income a household earns, the higher the amount of PAYE which can be attributed to the progressive nature of this tax. There is very little relationship between gross pay and excise tax hence the degree of consumption of Tobacco and narcotics and in general excisable expenditure is independent of the level of income.

Table 4.9: Regression Parameters

Coefficients				
	Unstandardized Coefficients		Standardized Coefficients	t
Model	B	Std. Error	Beta	
(Constant)	4,623	63.05		73.32
Gross Income	0.91	0	1.38	1,990.33
PAYE	-0.7	0	-0.3	-446.15
Excise Tax	-1	0.01	-0.01	-88.15
VAT Amount	-1.01	0	-0.08	-325.34
Dependent Variable: Net Income				

Using SPSS, following regression analysis was estimated from the study.

The fitted standardized linear regression model from the study findings is presented as follows:

$$\text{Net Income} = 4,623 + 1.38x_1 - 0.3x_2 - 0.01x_3 - 0.81x_4 + \varepsilon \quad (4)$$

The regression model has R value of 1.00 hence the fitted values equal the observed values and therefore, all the data points would fall on the fitted regression line.

#### **4.4 Discussion**

The inequality in distribution of income was lowest in rural households with a Gini coefficient of 29.34% while inequality in urban areas was highest with a Gini of 73.92% as shown in table 4.2. For instance the bottom 10% households in rural areas had 2.7% of rural income while urban households had 0.2% of urban income. The corresponding upper deciles had 20.1% of total rural income and 68.8% of total urban income. The combined distribution of income for both rural and urban households is 58.07% with the upper and lower deciles having 51.5% and 1.1% of total income. Although a 64% of the sampled population were rural household, their total income was only 36% of total gross household income, an indicator that poverty is more prevalent in rural areas than in urban areas.

When PAYE is deducted from household income, the distribution of income among households differs from perfect equality by 53.4%, which is lower than before the effects of PAYE were taken into account as shown in table 4.3. Effectively, the percentage change in Gini coefficient is 8.0 % hence PAYE reduces inequality by 8%. The distribution of income among decile groups also changes with the upper decile having a lower 46.6% of total disposable income while the lower decile have a slightly higher 1.3% of total disposable income. The redistributive effect of PAYE was greater in rural households, with inequality reducing by 15.9% compared to urban households where inequality only reduced by 3.5%. Whereas the lower decile did not pay any income tax, the upper decile of households paid 24.6% of their gross income as income taxes as shown in table 4.6.

The redistributive effect of excise taxes was only marginal in rural households with the overall redistributive effect being negative 0.1% as shown in the table 4.4. Excise tax therefore increased inequality especially in urban households than rural households. Of the 6.8 million paid in excise taxes, 58% was paid by households in rural areas although they had lower income than urban households. The lower decile paid 0.5% of their gross income as excise tax with the upper decile paying only 0.1% as shown in table 4.6.



The after VAT distribution of household income differed from perfect equality 57.93% as shown in figure 4.1. The redistributive effect of this tax was therefore marginal with overall percentage reduction in Gini coefficient being 0.24%. Since VAT is paid as a percentage of vatable expenditure, the distribution of income after VAT does not change with the lower decile having 1.1% and upper decile having 51.3% of total net income after VAT. The VAT paid by the lower decile group as a percentage of their total income was 2.9% while the upper decile paid 4.5% of their total income as VAT.

The overall reduction in Gini coefficient relative to the Gini of gross household income when all taxes are taken into account is 8.71% with greater redistribution being in rural households at 15.9% compared to urban households which was 3.9%. From table 4.5, the personal taxes accounted for 77.6% of all taxes paid with VAT accounting 21.4%. 83.1% of total PAYE was paid by the richer 10% with the poorer 10% of households not paying any tax. For VAT, the rich 10% of households paid 54.8% with poor 10% of households paying 0.7%.

## **4.5 Summary**

Although 64.4% of the sampled population was rural households, 64.4% of gross household income belonged to urban households, and whereas the urban households paid more taxes in total for both PAYE and VAT, rural household paid more excise tax than urban households. Distribution of income was highly skewed with the upper deciles having over 51.5% of total gross income while the lower decile only had 1.1% of total gross household income.

The overall redistributive effect of taxes was 8.7% with PAYE contributing the highest redistributive effect of 8%. Households in rural areas generally paid less in taxes compared to their urban counterparts except for excise tax where they paid slightly more. Further, households in the upper quartile paid a higher proportion of their income as taxes compared to households in the lower decile.

# CHAPTER FIVE

## SUMMARY AND CONCLUSIONS

### 5.1 Introduction

This chapter presents several sub sections. Section 5.2 is the summary of the key findings of the study, section 5.3 is conclusion, while 5.4 discusses the limitations of the study. Section 5.5 highlights recommendations for further research and lastly 5.6 Implications for policy and practice.

### 5.2 Summary of the Study

Inequality in distribution of income in Kenya remains high despite past government efforts to bridge the gap. This can be attributed to among others ,the lack of deliberate government efforts specifically aimed at reducing this gap compounded by corruption. One way to address this trend may be reforms in Kenya's tax system so that more net benefits are concentrated in low-income groups. In this regard, this study estimates the redistributive effect of personal and consumption taxes.

The redistributive effects were measured in percentage terms by changes in Gini coefficients of income after a particular tax relative to the Gini of gross income. Personal taxes were imputed from the reported income using the income tax law, while VAT and Excise tax were imputed from the vatable and excisable expenditures at the rate of 16% and 130% respectively.

Although the majority of population is in rural areas, inequality is more widespread in urban areas than in rural areas. However, urban households have more income than rural households hence equity in distribution of income does not imply better living standards. The overall redistributive effect of personal taxes is 8.04% hence levying income taxes reduces inequality by 8%. This is due to progressive nature of this tax as higher incomes are taxed at higher rates. Whereas the lower decile group does not pay any tax, the upper decile pays 24.6% of their gross income as income tax. Further, Personal taxes have greater redistributive effect in rural households than in urban households as evidenced by percentage change in Gini coefficient of

15.9% and 3.5% for rural and urban households respectively. Apart from being progressive, income taxes account for 77.6% of all taxes.

Contrary the common belief that consumption taxes aid in redistributing income, the findings of this study indicate that VAT reduced inequality marginally by 0.24% while Excise tax actually increased inequality by 0.1% with inequality increasing in urban households for both of these taxes. Unlike personal taxes, the burden of consumption taxes as a percentage of gross household income is fairly equal for both low income households and high income households, hence failing to achieve equity cannon of a good tax system.

### **5.3 Conclusion**

The total income redistributive effects of taxes is 8.71% in terms of percentage changes in Gini coefficients for “before and after” taxes. The redistributive effect of personal taxes is highest in rural households than in urban households with inequality decreasing by 15.9%. This can be attributed to the fact that most households in rural areas have income which fall below the lower tax scale and income is more fairly distributed than in urban households. Overall, the personal taxes are the most progressive having the greatest redistributive effect of 8.04% and the highest yield hence the most attractive source of raising government revenue.

The redistributive effect of consumption taxes is small and negative (-0.1% and 0.24% for Excise tax and VAT respectively) with the lower decile paying an equal amount as a percentage of their gross income compared to the upper decile hence regressive. Rural Households’ excisable expenditure was notably slightly higher than for urban households. Taxes therefore aid in redistributing income with personal taxes having the greatest redistributive effect compared to consumption taxes.

### **5.4 Limitations of the Study**

No recent study on the integrated household and budget survey has been done in the recent past hence the study relied on data collected when the integrated household and budget survey for 2005/2006 was being carried out. Data on household income and the corresponding taxes paid by each household is generally not available hence expenditure approach was used to estimate the

household income. Further, it is very difficult to track all household expenditure hence the analysis is only indicative of what each household earns.

An assumption was made in arriving at the gross household income that all persons are subjected to tax on their earnings, which may not necessarily be true since the informal sector which is still highly unregulated in Kenya accounts for at least 77% of employment in Kenya (IEA, September 2012).

## **5.5 Recommendations for Further Research**

An integrated household and budget survey needs to be carried out by the Kenya National Bureau of Statistics for purposes of capturing the current trend in distribution of income and update its records. Areas of further research that were identified include a study on the redistributive effect of in kind benefits since welfare expenditure allows the government to selectively identify the recipient group hence more parsimonious and effective in redistributing income. Some of the in-kind benefits that would be considered in such a study include free primary and secondary education, subsidized healthcare including free maternity care and other essential services.

Another area of research that needs to be explored is how changes in tax policy have impacted the distribution of income across time, with a focus on long-term effects on human capital formation. Further research may consider the changes in the behavior of economic agents such as labour supply or capital as a result of a particular tax policy.

## **5.6 Implications for Policy and Practice**

Income tax is the most effective in redistributing income due to its progressive nature. The lowest annual income that is subjected to tax is Kshs. 121,968 at a rate of 10%. However the progressivity is limited only upto an annual income of Kshs 466,704 with all income above this amount being taxed at a flat rate of 30%. The government should therefore increase the lower taxable limit to cushion low income earners from taxation and increase progressivity by expanding the tax bands so that high income earners are taxed at higher rates without creating disincentive effect to work.

The base of VAT and Excise tax is consumption and since it is very difficult to discriminate consumption among households, the government should use consumption taxes to generate sufficient revenue that would then be redirected towards funding pro-poor programmes such as funding free education, healthcare and other essential services beyond the reach of the poor.

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## APPENDICES

### Appendix 1: Household expenditure and the corresponding taxes for analysis

Number of Households (Total 13, 158)	Amount	ANALYSED FOR		
		PAYE	Excise	VAT
<b>Expenditure</b>				
Value of purchased food	626,372,004	√		
Value of auto-consumption food	294,178,341	√		
Value of education	188,010,561	√		
Value of health	15,367,758	√		
Water	19,668,679	√		
Clothing and footwear	169,020,832	√		
Domestic household services	37,564,164	√		
Transportation	142,664,662	√		
Communication (postal and telephone)	55,934,250	√		
Other insurance excluding health	23,623,068	√		
Actual and imputed rent for missing households	145,027,764	√		
Non-regular expenditure	2,893,276	√		
Maintenance and repairs of dwelling unit (minor works)	31,110,114	√		
Recreation	36,231,884	√		
Furnishings and routine household maintenance	44,795,190	√		√
Tobacco and narcotics	13,956,088	√	√	√
Electricity, gas, fuels and heat energy	98,012,376	√		√
Electric small appliances	168,060	√		√
Frequent non-food expenditures excluding education and health	829,541,719	√		√
Household durable assets	74,460,221	√		√
<b>Total</b>	<b>2,848,601,010</b>			

## Appendix 2: Tax Table for Annual Income

Annual Taxable Income (Tax Bracket)	Tax Rate
Upto Kshs 121,968	10%
Next Kshs 114,912	15%
Next Kshs 114,912	20%
Next Kshs 114,912	25%
Above Kshs. 466,704	30%
Annual Personal Relief	13,944

### Appendix 3: Descriptives

```
DESCRIPTIVES VARIABLES=HouseholdSize TotalExpenditure GrossIncome PAYE ExciseTax VATAmount NetIncome
```

```
/STATISTICS=MEAN STDDEV MIN MAX SKEWNESS.
```

#### Notes

Output Created		24-Jul-2014 18:38:32
Comments		
Input	Data	C:\Users\Administrator\Desktop\MBA\Analysis\Final\ANALYSIS.sav
	Active Dataset	DataSet1
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	Weight	<none>
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	N of Rows in Working Data File	13158
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	All non-missing data are used.
Syntax		DESCRIPTIVES VARIABLES=HouseholdSize TotalExpenditure GrossIncome PAYE ExciseTax VATAmount NetIncome /STATISTICS=MEAN STDDEV MIN MAX SKEWNESS.
Resources	Processor Time	00:00:00.093
	Elapsed Time	00:00:00.046

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
House hold Size	13158	1	29	5.05	2.811	.850	.021
Total Expenditure	13158	1,282.9	13,094,965.9	216,491.945	474,049.9338	11.446	.021
Gross Income	13158	1,282.9	18,622,998.1	263,665.746	667,544.5226	11.788	.021
PAYE	13158	.0	5,514,088.2	40,233.593	192,588.9132	12.736	.021
Excise Tax	13158	.0	83,842.9	516.811	2,617.4436	12.094	.021
VAT Amount	13158	.0	1,263,011.7	11,121.422	33,691.2263	15.028	.021
Net Income	13158	1,249.8	12,208,247.3	204,853.712	441,750.5728	11.314	.021
Valid N (list wise)	13158						

## Appendix 4: Regression

### Notes

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Comments		
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	N of Rows in Working Data File	13158
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax		<pre> REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA CHANGE /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT NetIncome /METHOD=ENTER GrossIncome PAYE ExciseTax VATAmount. </pre>
Resources	Processor Time	00:00:00.592
	Elapsed Time	00:00:00.295
	Memory Required	2420 bytes
	Additional Memory Required for Residual Plots	0 bytes

**Variables Entered/Removed<sup>b</sup>**

Model	Variables Entered	Variables Removed	Method
1	VATAmount, ExciseTax, PAYE, GrossIncome <sup>a</sup>		. Enter

a. All requested variables entered.

b. Dependent Variable: NetIncome

<b>Model Summary</b>									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	1.000 <sup>a</sup>	1	1	3356.059	1	5.70E+07	4	13153	0
a. Predictors: (Constant), VATAmount, ExciseTax, PAYE, GrossIncome									

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.567E15	4	6.418E14	5.699E7	.000 <sup>a</sup>
	Residual	1.481E11	13153	1.126E7		
	Total	2.568E15	13157			

a. Predictors: (Constant), VATAmount, ExciseTax, PAYE, GrossIncome

b. Dependent Variable: NetIncome

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4623.280	63.052		73.325	.000
	GrossIncome	.910	.000	1.375	1990.326	.000
	PAYE	-.696	.002	-.304	-446.152	.000
	ExciseTax	-.996	.011	-.006	-88.151	.000
	VATAmount	-1.006	.003	-.077	-325.336	.000

a. Dependent Variable: NetIncome

## Appendix 5: Correlations

### Notes

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	Split File	<none>
	N of Rows in Working Data File	13158
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=GrossIncome PAYE ExciseTax VATAmount NetIncome /PRINT=TWOTAIL NOSIG /STATISTICS DESCRIPTIVES /MISSING=PAIRWISE.
Resources	Processor Time	00:00:00.125
	Elapsed Time	00:00:00.079

### Descriptive Statistics

	Mean	Std. Deviation	N
GrossIncome	263665.746	667544.5226	13158
PAYE	40233.593	192588.9132	13158
ExciseTax	516.811	2617.4436	13158
VATAmount	11121.422	33691.2263	13158
NetIncome	204853.712	441750.5728	13158



**Correlations**

		GrossIncome	PAYE	ExciseTax	VATAmount	NetIncome
GrossIncome	Pearson Correlation	1	.995**	.055**	.959**	.999**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	13158	13158	13158	13158	13158
PAYE	Pearson Correlation	.995**	1	.045**	.957**	.991**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	13158	13158	13158	13158	13158
ExciseTax	Pearson Correlation	.055**	.045**	1	.072**	.051**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	13158	13158	13158	13158	13158
VATAmount	Pearson Correlation	.959**	.957**	.072**	1	.951**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	13158	13158	13158	13158	13158
NetIncome	Pearson Correlation	.999**	.991**	.051**	.951**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	13158	13158	13158	13158	13158

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Appendix 6: Letter of Introduction**



**UNIVERSITY OF NAIROBI  
SCHOOL OF BUSINESS  
MBA PROGRAMME**

Telephone: 020-269162  
Telegrams: "Varsity", Nairobi  
Telex: 22095 Varsity

P.O. Box 30197  
Nairobi, Kenya

DATE... 12/07/14

**TO WHOM IT MAY CONCERN**

The bearer of this letter MWANGI M. JACKSON

Registration No. DG1/753001

is a bona fide continuing student in the Master of Business Administration (MBA) degree program in this University.

He/she is required to submit as part of his/her coursework assessment a research project report on a management problem. We would like the students to do their projects on real problems affecting firms in Kenya. We would, therefore, appreciate your assistance to enable him/her collect data in your organization.

The results of the report will be used solely for academic purposes and a copy of the same will be availed to the interviewed organizations on request.

Thank you.



**PATRICK NYABUTO  
MBA ADMINISTRATOR  
SCHOOL OF BUSINESS**