EFFECT OF TAX ADMINISTRATION REFORMS ON TAX COLLECTION AT THE KENYA REVENUE AUTHORITY

BY

HASSAN MWINYI MWIDADI

MASTER OF SCIENCE IN COMMERCE

(FINANCE & ACCOUNTING)

KCA UNIVERSITY

2019

EFFECT OF TAX ADMINISTRATION REFORMS ON TAX COLLECTION AT THE KENYA REVENUE AUTHORITY

BY

HASSAN MWINYI MWIDADI

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF DEGREE OF MASTER OF SCIENCE IN COMMERCE (FINANCE & ACCOUNTING)
IN THE SCHOOL OF BUSINESS AND PUBLIC MANAGEMENT
AT KCA UNIVERSITY

SEPTEMBER, 2019

DECLARATION

I declare that this dissertation is my original work and has not been previously published or submitted elsewhere for award of a degree. I also declare that this dissertation contains no material written or published by other people except where due reference is made and author duly acknowledged.

Student Name: **HASSAN MWINYI MWIDADI** Reg,No. **11/03047**

Sign: _____ Date: _____

I do hereby confirm that I have examined the master's dissertation of

HASSAN MWINYI MWIDADI

And have certified that all revisions that the dissertation panel and examiners recommended have been adequately addressed.

Sign: _____ Date: _____

DR. MICHAEL NJOGO

Dissertation Supervisor

EFFECT OF TAX ADMINISTRATION REFORMS ON TAX COLLECTION AT THE KENYA REVENUE AUTHORITY

ABSTRACT

This study aimed at evaluating the effect of tax administration reforms on tax collection at the Kenya Revenue Authority. Specifically, the study determined the effect of internal processes reforms, taxpayer segmentation reforms, staff welfare reforms and tax audit reforms on tax collection in Kenya. Kenya's tax regime experienced several failures in their attempt to raise the level of taxes leading to many unsuccessful tax reforms as proposed by World Bank as well as the Kenya government. However, the studies did not point out tax administration reforms as key to improved tax performance.Therefore, a gap exists in this field of study that can be filled through a Kenyan study. The researcher therefore wanted to establish the effect of tax administration reforms on tax collection at the Kenya Revenue Authority. The study was anchored on Wagner's law of increasing state activity theorywhich advocates for increased public expenditure for economic growth. However, this will not be possible without funds. Therefore, the government must raise enough revenues to support the public expenditures. Wagner's law of increasing state activity was also supported by Peacock and Wiseman theory of public expenditure as well as Clark's critical limit hypothesis. These theories also advocate for increased taxation to finance the public expenditure. Similarly, both Lindhal's and Pigou's models of taxation were inculcated as both try argue for the limits of state activity as well as tax burden seeking an equilibrium for expenditure versus revenue collection. In order to achieve the study objectives, the researcheradopted a descriptive research design.A sample of 128KRA staff was selected using stratified sampling technique. Data was collected using structured questionnaire through a drop-and-pick method. The data collected was analyzed using descriptive statistics and multiple regression analysis with the help of Statistical Package for Social Scientists (SPSS, ver.20). The findings from the study were that internal processes reforms and taxpayer segmentation reforms had a negative effect on tax collection at the Kenya Revenue Authority while staff welfare reforms and tax audits reforms had a significant and strong positive effect on tax collection at the Kenya Revenue Authority. The study recommends for further research in this field and advice government policy makers to investigate onwhy taxreforms have not achieved the intended purposes in Kenya.

Key Words: Tax Reforms, Performance

ACKNOWLEDGEMNT

I acknowledge my sincere gratitude to the Almighty for the gift of life, my supervisor Dr. Michael Njogo for the support and guidance in this project, my colleagues for their support and input and finally, my family for financial support throughout the study period.

TABLE OF CONTENTS

DEDICATION

I dedicate this project to my parents who sacrificed their resources to ensure I succeed in life, my lovely wife and daughters for supporting me.The many hours spent away on studies as you prayed for me have not gone to waste and without you, this project could never have come through.

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS AND ACRONYMS

ADB	African Development Bank
FM	Flow Meters
GDP	Gross Domestic Product
ITMS	Integrated Tax Management System
KCA	Kenya College of Accountancy
KRA	Kenya Revenue Authority
LTO	Large Tax Office
MoF	Ministry of Finance
MSTO	Medium and Small Tax Office
REO	Real Estate Office
SPSS	Statistical Package for Social Sciences
SS	Simba System
TMP	Tax Modernisation Program
VMS	Vehicle Management System
WB	World Bank

TERMS AND DEFINITIONS

ITMS	Integrated Tax Management System refers to an upgraded environment in which all tax processes are shared safely by those on the system
Large Tax Office	In the Kenya system, this represents taxes from corporate offices with huge revenue plans
Small Tax Office	The Kenya Revenue Authority classifies personal and small business enterprises as Small Tax
Simba System	In revenue terms, this is a special software system that smoothly coordinates clearance and shipping of goods out of the Kenyan ports
Tax Audit Returns	TARs are checkup systems by the taxman for identifying deviations or overflows in tax collection processes

CHAPTER ONE:

INTRODUCTION

1.1 Background of the Study

Many countries undertake tax reform measures to improve revenue performance, simplify tax procedures and enhance compliance. However, reforming the tax system is not simple as it involves instituting changes to the existing system and coming up with a semi-autonomous body that will be responsible for revenue collection (Omondi, 2014). For the initiatives to succeed, the government must provide support both financially and through enacting relevant legislations. This is supported by various scholars, who alluded that if a tax system is to achieve its objectives, then it must be adequately staffed, organization structure should be clear and the system should be automated (Owusu, 2013; Bird, 2010; Moore, 2014).

Jacobs (2007) study advocated for modernization of tax administration with a view of providing effective systems that will reduce corruption, allow the use of modern communication methods, reduce personal contacts and implement systems on raising tax revenues. Generally, tax administration reforms were expected to enforce compliance by reducing tax evasion and improve governance. United State of America enacted its tax reform Act in 1986 whose main objectives were to simplify the tax code, broaden the tax base and increase equity. Revenue needs were perceived to be great at the time, with a federal budget deficit in excess of 5% of GDP that year. However, Graetz (2011) indicated that the Tax Reform of Act 1986 was a great achievement which did not receive public support. The reforms initiated have since been

reversed. He concluded that the country needed a tax system, which was simpler, fairer, and more conducive to economic growth in today's global economy.

Tax reforms in Philippines were motivated by the need to harmonize the tax brackets in order to match the changes in incomes that have taken place since 1997 (Enrico-Gloria, 2014). According to the research findings, most income tax systems in the world are not adjusted for inflation and hence the need for constant reviews to factor in inflationary trends. African governments embraced tax reforms aimed at increasing tax revenues, reduce trade taxes and moderate tax rates. The Reforms included the introduction of consumption taxes, simplifying the tax structure and improving tax administration (Simbanegavi, 2015). In his research, Simbanegavi (2015) established that the main challenge facing African governments was how to generate more revenue to meet the incremental development needs. Therefore there is a need to undertake tax reforms aimed at raising the tax-to-GDP ratio; reduce trade taxes, and moderate tax rates.

Uganda embraced tax reforms in the year 2004 and as a result, the total revenue collections grew by 317.5% (Baingana, 2011). In his study, Mburu (2011) affirmed that despite the various tax reforms undertaken since 1986, tax system did not match the Kenyan economic growth. Mburu (2011) recommended the revaluation of policy reforms undertaken with a view of taking corrective action. This was supported by Omondi (2014) whose research on effect of tax reforms on buoyancy and elasticity established that tax reforms improved buoyancy over the study period. The results indicated a coefficient of 0.69 during the pre-reform period and a coefficient of 0.55 during the reform period. The two studies further established that despite having positive effect on both tax buoyancy and elasticity, the results indicated the need for Kenya to reevaluate the implementation strategies and pursue further reforms for it to fully exploit the tax revenue potential of the economy.

1.1.1 *TaxadministrationreformsinKenya*

The Kenyan tax system has undergone continual reforms over the last twenty years. The key reason for undertaking tax reforms in Kenya was to address issues of inequality and to create a sustainable tax system that is expected to generate adequate revenue to finance public expenditures. In this respect, the tax modernization programme introduced in the country was expected to develop a tax system that was sustainable in the face of changingeconomic conditions domestically and internationally (Wanjala, 2006). This was supported by Omondi (2014) who advocated for institution of measures that will increase revenue collections to support the devolved structures spelt out in our constitution.

During the period 1964–1977, the government of Kenya was able to finance its current expenditure and part of its development expenditure using recurrent revenue receipts, and hence had minimal fiscal deficits. This was made possible by constant flow of donor assistance in terms of grants and aid (Moyi, 2003). However, this changed in late 1970s, after a series of both internal and external shocks which led to fiscal deficits attributed to uncontrolled public expenditure and the tax system could not generate enough revenues to support the increased public expenditure. The fiscal policies instituted by the relevant authorities were not in a position to mobilize additional resources. This therefore called for improved revenue mobilization techniques and reduction in public expenditure to minimize the deficit (Omondi, 2014).

Overall, the Kenyan approach to tax reforms can be divided in two phases namely, the pre-reform period and the post reform period. The pre-reform period was from independence to early 1980's. This period was characterized by minor reforms (Kenya Revenue Authority Report,

2015). The minor reforms instituted during this period were meant to mitigate the effects country balance of payments problems experienced in 1971. In order to reduce the balance of payment deficits, the government tightened the trade regime and sought for external loans from the IMF to finance structural changes in the industrial sector, promote efficient use of external resources and enhance the competitiveness of public investment. The loans were eventually converted into structural adjustment loans meant to spur growth of various sectors of the economy (Kiriti, 2002).

The second phase of reforms started by the adoption of the Tax Modernization Programme in 1986 and Tax Rationalization Programmes in 1987 (Moyi, 2003). The aim of Tax Modernization Programmes (TMP) was to enhance revenue collection and regulate expenditure through strict fiscal policies (Gor, 2014). A study conducted by African Development Bank Group outlined the main reforms undertaken in the second phase (1986-2003) which included the expansion of tax base, rationalization of the tax structure and tax rates, sealing tax loopholes among others. It is during this period that the Government through the Ministry of Finance initiated administrative reforms that led to the formation of the Kenya Revenue Authority in 1995 (Jack, 2009).

As observed by Karingi and Wanjala (2005) the introduction of reforms was meant to solve recurring difficulties found in the tax systems of not just Kenya but developing nations in general. Well documented problems include but are not limited to tax administration improvement, sorting out tax productivity fluctuations and specifically balancing the distortions of economic concerns. Consequently, this leads to the suggestion that several facets of tax in the country would change including efficiency, fairness as well as the tax regime itself leading to improved revenue collection.

1.2 Statement of the Problem

Kenya's tax collection system has been reformed severally following failed attempts by the previous regimes in raising adequate funds for the economy (Gor, 2014). A report by World Bank in the 1980s (World Bank, 1986) highlighted the loopholes that affected tax collection and pointed out areas that required reforms to seal the leakages. However, the measures suggested by World Bank were controversial and unpopular to implement. This therefore made it difficult to a achieve the intended purpose of the reforms leading to unachieved tax collection targets as highlighted in KRA reports of 2013-2014 and 2014-2015 (KRA, 2015). Therefore there is clear need to revamp the current tax systems in Kenya to facilitate KRA achieve the preset targets.

Lucotte (2012) highlighted many loopholes found in the various tax reforms across Europe citing specific country tax levels and freedom of movement of goods across Europe as a major hindrance to effective tax collection. Similarly, studies in the USA by Crivelli and Gupta (2014) pointed out corruption as the key aspect that derails tax reforms that can improve tax collection. In Africa, Nkwe (2012) noted that tax collection was treated not as a government function for the whole economy but as a function to enrich some people. Ohemeng and Owusu (2015) who concluded that the political interests of the ruling regime complicated tax reforms while most tax officers were not conversant with various aspects of taxation collection. In Botswana, Nkwe (2012) noted that technology as well as low level of education was a key factor in poor tax reforms leading to poor tax performance. Locally, Mirera (2013) and Chilibasi (2014) concluded that the areas of tax reforms as well as the coverage of tax collection was poorly covered. They

attribute this to lack of adequate technology and personnel who eventually get compromised leading to poor tax collection.

From the above studies, it is very clear that tax reforms are not well received across many regions and this has led to inadequate tax collection. Whereas the studies were carried out in Europe, America and other African countries, a gap exists that can be filled through a Kenyan study. Those studies in Kenya have not particularly pointed out tax administration reforms as the key to improved tax performance. It is from these gaps that this study had a basis and visited the field asking, "have tax administration reforms had an effect on tax collection at the KRA?" Even though Kenya embarked on massive tax reforms in 1986, little is known about the impact of the reforms in terms of raising the revenue mobilization capacity of the tax system. It is also hard to single out the impact of the tax administration reforms on each tax head (Moyi, 2003). This study therefore intended to fill the knowledge gap on effect of tax administration reforms on tax collection in Kenya.

1.3 Objectives of the study

1.3.1 *Generalobjective*

To examine the effect of tax administration reforms on tax collection at the Kenya Revenue Authority.

1.3.2 *Specific objectives*

i. To determine the effect of internal processes reforms on tax collection at the Kenya Revenue Authority.

ii. To establish the effect of tax payer segmentation reforms on tax collection at the Kenya Revenue Authority.

iii. To find out how staff welfare reforms affect tax collection at the Kenya Revenue Authority.

iv. To assess whether tax audit reforms have an effect on tax collection at the Kenya Revenue Authority.

1.4 Research Questions

i. How do the reforms in internal processes affect tax collection at the Kenya Revenue Authority?

ii. Doestaxpayersegmentation reforms have an effect on tax collection at the Kenya Revenue Authority?

iii. What is the effect of staff welfare reforms on tax collection at the Kenya Revenue Authority?

iv. How do tax audits reforms affect tax collection at the Kenya Revenue Authority?

1.5 Significance of the Study

The findings of this research could shed light on the impact of tax administration reforms on tax collection at the Kenya Revenue Authority. The findings could be beneficial not only to the KRA top management team, but also to the Government policy makers whose aim is to improve the

GDP of the country. Similarly, results of this study could be used to design growth-oriented programmes and carry out tax changes that are growth enhancing. The findings on established relationship between reforms and productivity could also be used by tax stakeholders to formulate policies meant to spur growth in the economy. Finally, the study will contribute to the existing literature and body of knowledge in the field of taxation inspiring other scholars for further study.

1.6 Scope of the Study

The scope of the study was limited to the evaluation of tax administration reforms as implemented by the KRA. The study therefore focused on various reforms implemented by KRA from the year 2001 when KRA adopted modern strategic planning and performance management techniques as envisaged in the first corporate plan. Using a descriptive design, the study administered a structured questionnaire to the KRA staff related to tax reforms. The selected sample for the study mainly comprised members of staff from human resources section, taxpayer recruitmentsection, tax compliance and audit section stationed at Southern Region.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the various theories, concepts and studies that exist in understanding the tax reforms as an economic tool specifically emphasizing the successes as well as challenges that have been faced in the application of tax reforms both locally, regionally and internationally. There has been extensive research on tax reforms globally and in Kenya and hence, this project was built on the work of prior researchers. The chapter is arranged into three sectors starting with theoretical review, empirical studies and conceptual framework.

2.2 Theoretical Review

In this section, the main theories related to tax reforms are explained with a view to understanding the use of such theories. There is also an explanation of the importance of the theories selected and finally, examples of where or how the theories have been used. The major theories include Wagner's law of increasing state activity, Peacock and Wiseman theory of public expenditure as well as Clark's critical limit hypothesis.

2.2.1 *Wagner's Law of increasing state activity*

The Law of increasing State activity was introduced by Wagner (1893) and it states that as per-capita income increase, the relative size of the public sector is expected to grow with the corresponding subsectors in the private sector also having a notable growth pattern (Kanyi, 2014).

As applied in his studies,Kanyi noted that the theory had many defects. First, it is not a well-articulated theory of public wants; rather it is an organic theory of the State where the State behaves as if it were an individual and takes decisions independent of members of the society. Secondly, the predictive power of the theory is very much doubtful. It is not always true that as par-capita income grows, the share of public expenditure in GNP increases. The share of public expenditure may actually decrease as the economy grows particularly when the private sector is strong and dynamic. The Kenya government on the other hand pursued tax reforms in order to finance and sustain government expenditure without relying on grants and aids (Omondi, 2014).

Chuke and Tarila (2018) investigated the tax reforms in Nigeria using data aggregated over a 44 year period. The study used Wagner's law and Keynes hypothesis and concluded that government-spending and other variables like national income had non-stationery characteristics and were not integrated in the long run. Government expenditure variables were also found to be affected by GDP thus proving Wagner's law significance.

In their study on the relevance of Wagner's Law to Zambia, Salwindi and Seshamani (2016) observed that economic growth was significant in influencing government expenditure in only Peacock and Goffman models. Granger causality test revealed a unidirectional relationship. The study relied on annual time series data obtained from World Bank database.

Ogbonna (2015) in his study on the applicability of Wagner's Law on Greek economy for the period 1948-2010 observed that the law was not applicable. Both causality and co-integration tests revealed that the law was not applicable in Greek Economy. Greece should therefore focus on promoting the private sector to spur economic growth.

Wagner's law is relevant to this current study as it enlightens the government on how it can sustain the ever expanding government expenditure without relying on donor funding. There is more evidence from the theory to indicate government participation.

2.2.2 *Peacock and Wiseman theory of public expenditure*

Allan Peacock and Jack Wiseman theory (1955), is based on the political theory of public expenditure determination and it states that government likes to spend more money, citizens do not like to pay more taxes, and that government needs to pay some attention to the aspiration and wishes of their people (Kanyi, 2014). Peacock and Wiseman studied the public expenditure from 1891 to 1955 in U.K. They found out that Wagner's Law was still applicable and concluded that, rise in public expenditure greatly depends on revenue collected, there exists a big gap between the expectations of the people about public expenditure and the tolerance level of taxation and hence governments cannot ignore the demands made by people regarding various services and finally during war, normally the government increases the tax rates, and enlarges the tax structure to generate more funds to meet the increased defense expenditure.

After the war, the new tax rates and tax structures may remain the same, as people get used to them. Therefore, the increase in revenue results in rise in government expenditure. Wagner's law and Peacock-Wiseman hypothesis emphasize on the fact that public expenditure has tendency to increase overtime and hence the need to come up with ways of generating more revenue.

Dada and Adesina (2013) studied the validity of Peacock-Wiseman hypothesis and its implication on Nigerian Economy. They relied on time series data covering the period 1961-2010.The variables used were government revenue, government expenditure and inflation. They

employed both co-integration and granger test. The results validated the hypothesis and revealed that it was applicable in Nigeria both in the short and long run.

Studying various micro models for tax reforms, Dominick (2002) observed that Peacock and Wiseman theory had many implications for the government policy makers. The scholar noted that tax collected and its distribution to be directly influenced by Peacock and Wiseman's law of public expenditure. In conclusion, this model identified an overall change in GDP as well as per capita income thus influencing government expenditure and its growth.

Agbonkhese and Asekome (2014) studied the Nigerian tax regime. In their study of the Nigerian tax regime found that as per capita income in an economy grows, the public sector size grew in same proportion. The scholars cite Peacock and Wiseman's theory as being key to studying the relationships of tax reforms and government activities. The scholars concluded that there was evidence to suggest the best method of measuring the effect of government expenditure on tax reforms was through this theory. It was therefore imperative to have a consideration of fiscal policy when any study on tax reforms was taking place

Studies by Kanyi (2014) and earlier on Mburu (2011) were in support of theory of public expenditure in their studies. Both scholars indicated that neither government expenditure nor its revenue earning was good or bad per se, but that it required sobriety to moderate as to how much expenditure a government should forego in order not to hurt its citizens through heavy taxation. This theory is very relevant to the study since it tries to give the basis as to why the government is required to spend in order to almost justify tax levied on its citizens. The theory, clearly articulates the link between government expenditure and development and that there can be no development without revenues.

2.2.3 *Clark's critical limit hypothesis*

In his theory of critical-limits, Clark (2011) looks at the tolerance levels of taxation in a nation by its tax payers. In the theory, the scholar states that when the government sector and other receipts go beyond the average of twenty five percent, inflation is bound to go up. The scholar would then indicate that such a scenario means the government tax increasing proportionately to harm production incentives as well as lowering productivity. However, this would mean that more people are less resistant to inflationary tendencies as the demand for goods will increase while there is no incentive to supply the same.

Crivelli and Gupta (2014) observed that this is a clear case of inflation resulting from the imbalance between demand and supply. Through tax reforms, the negative effects can be countered although in many cases it has become clear that people can be very tolerant the more they are taxed. Other scholars including Bird (2010), Khamis (2012) and Chilibasi (2014) used the theory in their studies on government expenditure and tax regimes with the result that most taxation systems failed to fully involve all options that would ease the tax burden to the tax payer. Studies that have disapproved this theory point to the fact that there are many successful countries in the developed as well as developing world that have surpassed the recommended limits but had no inflation records. These include studies by Enrico-Gloria (2014) and Jetty (2012), in which countries that applied as high as 30 to 36 percent taxation still end up doing well in their particular regions as well as when compared to global statistics.

The theory is very relevant to the current study as it helps establish a foundation as to the limits the government can achieve to tax its citizens. In other words, this theory give's a bird's eye view of the pulls and pushes made by the government in reaching a tax bracket for every sector of the economy. It is also important to note that theory gives a justification as to the limits a

government can put on its taxation figures while also proving that not all seemingly high taxes can hurt the common citizens.

Attari, Taha and Farooq (2014) indicated that both the stock exchange market and economic growth are directly related to the Clarke's Critical Limit theory in that tax and price of goods are elastic to tax changes. Pakistani government is believed to have commissioned a study of their GDP fluctuate when tax collection reforms were put in place thereby encouraging the conclusion that both are related. The scholars also noted that tax audits that acted as a restraint to the government were an indication of the application of Clarke's theory.

Similarly, Amri and Kern (2016) indicated that credit cycles that exists during election period play a role in the taxation regime. During elections, both public and private credit limits are stretched and the effect is noticeable thus conforming to the Clarke's theory. Both interest rates subsidies and breaks for debt will enhance credit growth breaking through the limits of set borrowing. Credit markets are thus disrupted as they fail to obey the Clarke's limits further confirming the application of this theory.

Locally, Mburu (2011) studied tax reforms and the effect of economic factors. Basing his studies on the public expenditure theory, the scholar concluded that over 50 percent of the population will stick to their expenditure patterns regardless of the level of taxation contrary to the theory.

2.2.4 *The Benefits Theory - Lindhal's Model*

In the theory of benefits, Lindhal (1958, 2007) is focused on identifying the people to benefit from any tax collected or revenues by the government. By so doing, the theory attempts to give solutions on how far the government can enter into activities, how much the same government can allocate for services as well as goods and finally to whom the tax burden should lie. This

theory determines the total community demand and tries to give the correct proportions of the same that should be served by the government funding. As pointed by Weinzerl (2018) an equilibrium point is supposed to be reached without any coercion or force.

Sun (2017) indicates that the benefit theory can be made to apply if well policed and with higher transparency within the regime. This means that the market behavior can be studied to give an accurate estimation of the most likely equilibrium point which would then act as the guide to allocating revenue for appropriate expenditure. Scholars who have critized the theory including Bastani and Waldenstrom (2018) point to the fact that the benefit approach would really limit the way a government spends arguing that no all benefits of one region could be beneficial all through the country. Again, apart from having to observe the beneficiaries to ascertain their satisfaction, the theory suffers from the fact that in the long run, it would not change the distribution pattern which is in the hands of the ruling regime always (Hummel, 2016). This model is however a good guide to the study as it helps in understanding the benefits that citizens would have if the government adopted some form of benefits theory.

2.2.5 *Piguo's Ability to Pay Theory*

The ability to pay theory byPiguo attempts to advocate for every tax payer's ability to pay leading to the higher income earners paying more and the lower income earners paying less (Wienzerl, 2018). In other words, taxation is meant to be a progressive exercise in which there is no equilibrium but where entities are taxed as per their ability to pay that amount. This principle calls high earning entities to be observed and carefully taxed in order to avoid any tax shortfalls since their high income will most likely play the highest role in supporting government

expenditure. However, critics of the principle quickly point to the fact that taxes are there for public goods and that it is not possible to control calamities like floods and defence using only the large earners incomes since the benefits to the population will not discriminate who gave much and who gave less (Ross, 2018; Hunt, 2016).

There is also the argument that failure to charge people different taxes would be tantamount to having some left with too much while other would be left with very little for their expenditure and this would almost bring a revolution to the land (Onakoya&Affintini, 2016). Other critics have indicated that if this principle was followed, people would be lazy with no incentive to work hard as the hard workers appear to be penalized by the government through higher taxes arguing that the lazy are encouraged to be lazier as the hard working are severely punished by the high taxes. This theory complements the other theories by this study as it tries to rationalize the methods of taxation used by the government.

2.3 Empirical Review

In this sector, the study has a critical review of empirical studies relevant to this study and done by other scholars world-wide. The subthemes of the empirical review cover the full items to be handled in the study including internal process reforms, tax payer segmentation, staff motivational packages, tax audit reforms all with regard to tax collection. The empirical review will take the funnel approach of international, regional and local studies to cover full spectrum of studies in relating to tax reforms.

2.3.1 *Internal processes reforms and tax collection*

In their studies on Bangladesh tax reforms, Crivelli and Gupta (2014) examined the tax reforms over a period of 3 years using census of the country revenue authority. Through questionnaires and discussion groups, the scholars concluded that most systems implemented at the various branches of Bangladesh Revenue Authority had poor personnel training. This meant that more resources were required to train the staff on the same or else the systems would remain non-functional or not functional to their full potential. Similarly, Enrico-Gloria (2014) in her study of the Philipine reforms in revenue collection observed that majority of the systems implemented were a bit cumbersome to use, forcing people to resort to unorthodox means in their mandatory tax requirements by the tax regimes.

Locally, Kanti (2014) studied the tax reforms in the country with the use of secondary data and concluded that the systems implemented at the KRA were to an extent not very friendly hence making KRA not to meet the preset targets. The scholar looked at the Integrated Tax Management System (ITMS), Vehicle Management System (VMS) and flow meters and recommended that through teaming up with other stakeholders in the economy, KRA should come up with more versatile systems that encourage tax payers to use them. The scholar also referred to the critical limits theory concluding that Kenyan tax regime was a bit too harsh on its people surpassing the 25 percent as recommended by Clark's hypothesis.

From the above studies, there is a clear relationship between internal processes reforms and tax collection. Therefore, we can conclude that tax administration reforms lead to increased tax collection. However, there must be good will from the political class for a positive correlation

between the reforms and tax collection to exist. Both Kanti (2014) and Enrico-Gloria (2014) indicated a positive relationship between internal process reforms and tax collection.

2.3.2 *Tax payer segmentation reforms and tax collection*

Although there has been clear demarcation of tax regions, studies by Lucote (2012) in Tunisia indicated that both corporate and individual tax segmentations fall short of their targets. Using samples of tax payers in the domestic and international divisions, the scholar concluded that 80 percent of the tax came from the corporate segment but that their potential was far much higher. In the case of Zanzibar, Khamis (2012) used 4 sectors of the revenue collection in the island nation to conclude that individual tax payers did not have adequate systems set for them to fully participate in revenue collection. Khamis (2012) blames this on the failure to observe the theory of increasing state activity in which most citizens feel the country does not have enough productive activities to encourage them pay their taxes and help in revenue collection.

Kanyi (2014) observed that, KRA had not fully exhausted the various individual categories of people who could be affected by the various reforms they have tried over years to implement. Instead, the authority goes for the corporate class while leaving the individuals with no incentive to feel to want to pay their taxes. Kanyi points to the public expenditure theory as the key to achieving this shortfall arguing that if the KRA educated the general public closely on the need to recognize tax as tied to development of their regions, then people would be willing to pay tax without evasive actions.

From the above studies, there is both negative and positive relationship after taxpayer segmentation and those regimes that effect well-researched taxpayer segmentation strategy end up with higher tax collections. As demonstrated by Kanyi (2014), there can only be positive

relationship when fairness is observed. The negativity normally comes from the feeling that some segments have more benefits or enjoy better services than others. Taxpayer will be willing to comply with tax laws when there is equality and benefits of tax collection are equally shared. When there is a feeling of unfairness in tax collection and inequality in tax distribution, there will be tax evasion leading to negative relationship.

2.3.3 *Staff welfare reforms and tax collection*

Pinshaw (2009) studied the Turkish tax reforms using 8 major companies that contributed nearly 40 percent of the revenue collected by tax authority. Through sampling of the human resources departments, Pinshaw concluded that reforms could work either to motivate or de-motivate work in the long run. The scholar cited increased training and bonuses as one of the motivating results that tax reforms brought to the organizations. The tolerance level of staff towards high taxation that was over 25 percent was also attributed to the regular salary increases enabling the people to adjust well to the increased taxation and hence continue to prosper while paying high taxes.

Moore (2014) in Ghana studied the effect of tax reforms on personnel and concluded that even though increased salaries was a motivating factor, staff who did not have adequate training would always be a hindrance to smooth implementation of those reforms. Similarly, unless there was provision for such motivators as bonuses and affordable housing, the reforms would not be effectively implemented.

Locally, Mburu (2011) studied tax reforms and the effect of economic factors. Basing his studies on the public expenditure theory, the scholar concluded that over 50 percent of the population will stick to their expenditure patterns regardless of the level of taxation. This led to further conclusions that reforms alone could not be the reason for revenue improvements. The

more that 60 percent of staff who felt that affordable housing was key to reforms also felt that staff should receive regular training in the area of systems management since many functions in production were becoming automated with the need to incorporate taxation requirements being more obvious.

All indications from the studies above depict a positive relationship between reforms and tax collection. However, this is only possible if the reforms are well implemented and effected over a long term period. Both Mburu (2011) and Moore (2014) indicated that when the internal welfare reforms take place, there is motivation for staff to go out and work hard. The assurance or guarantee that welfare matters are well-catered for by the employer gives personnel morale to put in more effort hence creating a positive atmosphere.

2.3.4 *Tax Audits reforms and tax collection*

Canteens (2007) has observed that most audits that take place after a system implementation will always fall short of identifying the key areas for reforms since there was poor and inadequate training. Using the tax authority divisions of Cameroon through sampling, the scholar found that the type of audit used was not to blame citing risk based audits and in depth tax audit as very effective methods, yet there was still a shortfall in tax collection by the country tax authority.

Simbanegavi (2015) used sampling of the Revenue Commission of Botswana to determine the effectiveness of the revenue collection systems. The scholar concluded that inadequate training was to blame for most of the failed audit systems citing informer reward system as being flawed with too much favoritism in the way rewards were issued. The scholar recommended the use of extra training to help in understanding the complex nature of the taxation audit systems.

Wanjala (2006) on his study of the reforms introduced at the KRA, observed that incentives to adopt several systems were in place but that there was a reluctance in implementation of most of the systems. This was attributed to the inadequate work force that meant majority of the areas for audit were not quickly covered leading to poor informer rewards. The scholar recommended the risk based audits and in-depth tax audit as some of the best systems by the KRA.

Tax audit reforms could have both positive and negative relationship on tax collection. The study by Simbanegavi (2015) indicates a negative impact since in most cases, when tax audit reforms are not accompanied by other reforms might lead to decreased tax collection. May be the recommendation by Wanjala (2006) for adoption of in-depth audits and risk based audits might lead to a positive relationship

2.4 Conceptual Framework

The conceptual framework in this study is aimed at giving a route map to the study on how each variable of the study relates to each other. As stated by Cooper and Schindler (2009) a conceptual framework defines clearly the path each variable has to take in order to achieve the main goal of the study. This is also called a cause-effect diagram in which independent variables (IVs) influence the outcome of the study which is the dependent variable (DV). Both Khamis (2012) and Mwaura (2014) as well as Chilibasi (2014) used conceptual framework in articulating the relationship between dependent and independent variables. The diagram is therefore relevant to the study to demonstrate the graphical connection between tax collection and all relevant factors that contribute towards or against its efficient application by a government through its tax revenue authority.

In this study, the dependent variable is tax collection at KRA following reforms. This is the key outcome that all administration reforms carried out by the KRA aim to achieve and thus forms the dependent variable. The independent variables include internal process reforms that are expected to contribute towards enhanced tax collection. Staff welfare reforms also play a critical role in the efficiency of tax collection while the tax audits reforms ensure that all systems are running as per design without any manipulation. In summary, the independent variables if well and fully implemented could work towards having an effective tax collection.

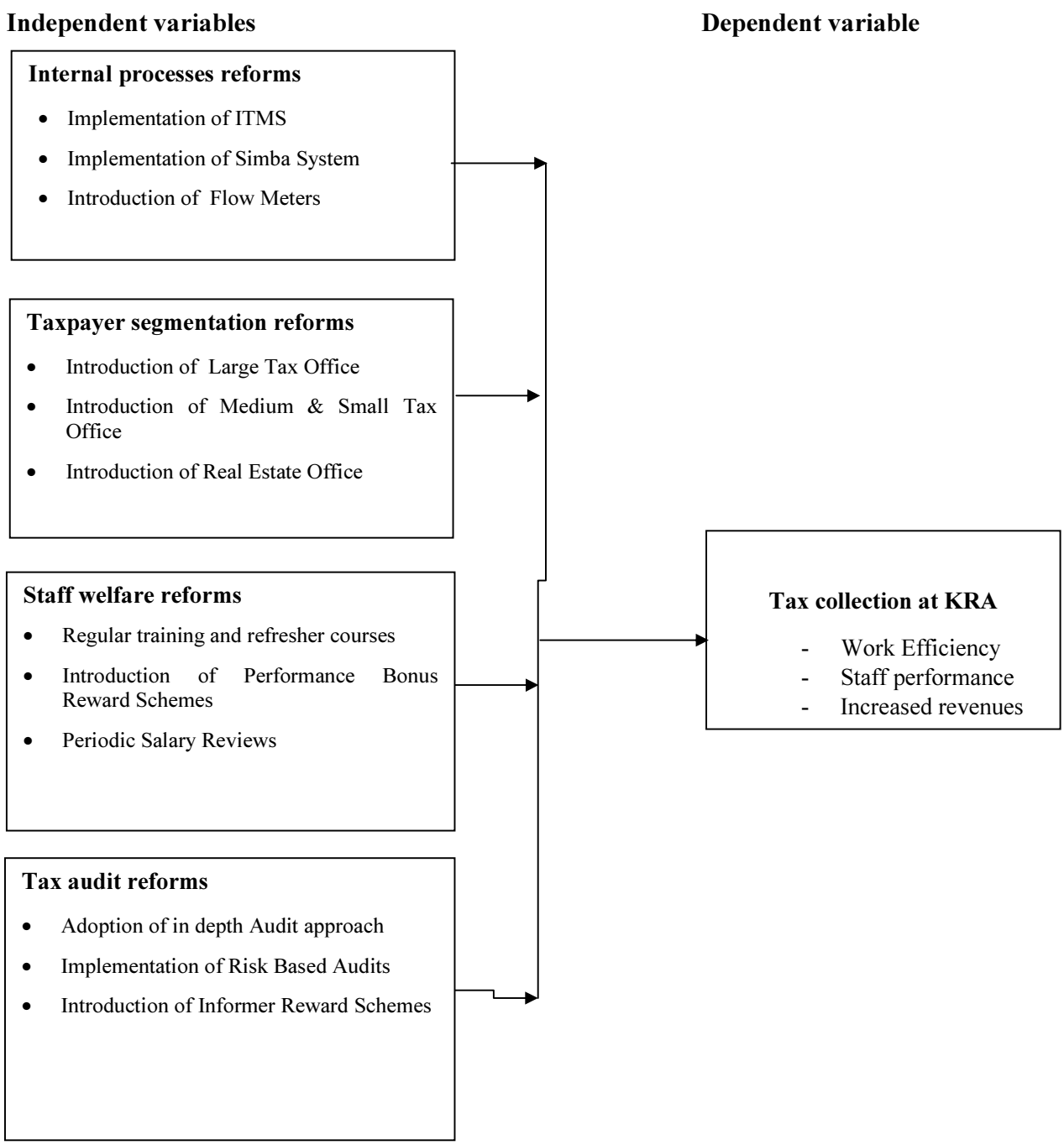


FIGURE 1: Conceptual Framework on Tax Collection

Source: Author's Construct (2019)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the research design, target population, sample size and sampling technique, instrumentation, data collection, data analysis and presentation. The chapter also gives a preview of the study model adopted and its implementation.

3.2 Research Design

This study adopted a descriptive research design. As a field study, there was need to have the phenomena being examined completely unchanged. According to Kothari (2008), this is the most appropriate design for studying without influencing the researched phenomena. Through descriptive design, the research was able to collect and utilize data so that desired information obtained with sufficient precision. The field of tax collection also meant that the data being collected would be best utilized if unaltered from the source and hence the adoption of descriptive research design.

3.3 Population

Cooper and Schindler (2009) have defined target population as a group of individual's objects or items from which samples are taken for measurements.The target population for this study was the 1,282 employees of the Kenya Revenue Authority (KRA, 2018). The members were drawn from the various departments of KRA. Kothari (2008) identified the population of interest as that

portion that is directly involved in the phenomena at study with high likelihood that results of the study directly reflect on them. Whereas the unit of observation was KRA respondent employees, the actual unit of analysis was KRA itself as a tax collection agent of Kenya.

3.4 Sampling Technique and Sample size

According to Mugenda and Mugenda (2003), a sample size of 10% of the sample size is considered adequate for descriptive study. For the purpose of this study; the research employed a stratified sampling to select a sample of 128 respondents. Stratified sampling is recommended in cases where the sample has various categories of subjects that could give mixed reactions to a question to eliminate any form of bias (Cooper & Schindler, 2009). This method ensures objectivity in data collection and gives a true representation of the target population from where the sample is sought. The sample data is presented in Table 1.

TABLE1: Proportionate Sample for KRA Staff

Department	**Target Population**	**Proportion**	**Selected Sample Size**
Support Services	306	26%	31
Strategy, Innovation & Risk Management	19	6%	2
Investigation & Enforcement	7	4%	1
Domestic Tax	492	33%	49
Customs & Border Control	459	31%	46
Totals	**1282**	**100%**	**128**

Source: KRA (2018)

3.5 Instrumentation

Primary data was obtained through a structured questionnaire administered to the study sample respondents. The purpose of primary data is to capture raw aspects of study phenomena to help in constructing themes, which enable the inculcation of both theory and empirical evidence (Kothari, 2008).

3.6 Data Collection

Since this research involved data collection from primary and secondary sources, letters seeking to be allowed to complete the data collection were fully obtained. Similarly, the research drafted a letter appealing to the respondents to participate freely with assurance of confidentiality. To increase the response rate, the questions on the questionnaire were brief and without any personal probing. Both drop-and-pick as well as emailing for those respondents who agreed to use the internet were used to optimize response rate. Completed questionnaires were collected within one week of delivery.

3.7 Validity and Reliability Tests

A pilot study to pre-test reliability of the research instruments was carried out to provide an opportunity to detect and remedy a wide range of potential problems on research instruments. Pilot testing also helped in identifying ways of improving the instruments. This study checked the content validity of the questionnaires that were used. This was established by consulting

senior academic lecturers who are experts in this field, the supervisor of this study and colleagues were requested to make similar assessment. Their feedback was used to affirm and improve the instruments through a pilot study. Similarly, the researcher employed Cronbach's alpha coefficient method to test reliability. To carry out this test, a pilot test was used to ascertain that all parts of the study instruments were reliable. According to Kothari (2008), an alpha coefficient of 0.70 is the threshold of acceptability of an instrument with those parts scoring below 0.70 requiring a re-structuring before carrying out the field exercise.

3.8 Data analysis

Cooper and Schindler (2009) defined data analysis as, the examining of the coded data critically and making inferences.Data from the questionnaires was analyzed in the following process; first, data collected was inspected thoroughly for its completeness, to identify mistakes such as inappropriately answered questions and wrongly filled spaces. Secondly, after correction of mistakes, the data was sorted into various categories. Thirdly, the data was coded with respect to the study variables, then processed for entry into computer system and analyzed. The final presentation was in form of frequencies, percentages, tables and pie charts while inferential statistics involved use of correlation and multiple regression analysis.

All procedures were performed using statistical package for social sciences (SPSS version 21) computer program. The regression model used is presented in the equation below: $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$ where:$\mathbf{Y}$ is the dependent variable,$\boldsymbol{\beta_0}$ is the constant term, $\boldsymbol{\beta_i}$ is the coefficient of the independent variable [i= 1…4], $\boldsymbol{X_i}$ where$i = [1, \ldots 4]$, $\mathbf{X_1}$ is Internal Processes Reforms, $\mathbf{X_2}$ is Taxpayer Segmentation Reforms,$\mathbf{X_3}$ is Staff Welfare Reforms,$\mathbf{X_4}$ is Tax Audit reforms, and e is the error term.

3.9 Diagnostic Tests

In order to have clean data with no redundancies, the study ran diagnostic tests to ensure results were not biased. This involved multicollinearity and normality. Since the study did not use hypothesis, there was no test for homoscedasticity.

3.9.1 *Multicollinearity*

In order to ensure that there was no high linearity amongst the variables of the study, a formal detection tolerance was applied using regression test as follows:

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

Where:**Tolerance** = 1-$R^2{}_j$, $\mathbf{R^2{}_j}$= the coefficient of determination of a regression of explanatory j. The test checked if tolerance was less than 0.20 to indicate multicollinearity-requiring change of variable.Similarly, if **VIF** was 5 or 10 and above, it would also indicate multicollinearity problem requiring change of variable. When faced with multicolinearity, the concerned variables would be ignored, since the presence of multicollinearity would imply that there was redundancy in the other study variables.

The results of the multicollinearity indicated that Tolerance was 0.4 which was way beyond the minimum threshold of 0.2 and safely below the high limit of 5. This was an indication that there was no multicollinearity and hence the data variables were fit for further analysis as indicated in the next chapter.

3.9.2 *Normality*

The study used data with a normal distribution and hence testing at 95 percent statistical tolerance interval for 99 percent of the total population of respondents sampled. In order to fully test for normality, this study applied Shapiro-Wilk test since the sample was less than 5000. This enabled a tolerance limit derived by computers to maintain the given level of confidence which is 99 percent of the population with 95 percent confidence. Using the Shapiro-Wilk test, the study determines a *w*-value of significance.

The formula for the *W*-value is:

$$\boldsymbol{W} = \frac{(\sum_{i=1}^{n} a_i \, x_{(i)})^2}{\sum_{i=1}^{n}(x_i - \bar{x})^2}$$

Where:

$\mathbf{X}_i$ are the ordered random sample values

a_i are constants generated from the covariances, variances and means of the sample (size n) from a normally distributed sample.

From the SPSS results, the *w*-value for this data was computed using 5 conditions representing the study objectives and 4 solutions with ANOVA indicated a score of 0.71 which is less than the standard threshold of 0.95 to declare that the distribution was normal and hence fir for further analysis.

CHAPTER FOUR

FINDINGS AND DISCUSSIONS

4.1. Introduction

Chapter four presents the research findings from the target population, which formed the sample of the study. The objective of the study was to determine the effect of tax administration reforms on tax collection at the Kenya Revenue Authority. The first section of the analysis focuses on the demographic characteristics of the respondents while the second part covers the relationship between the independent and dependent variables drawing statistical inferences for conclusive results of the study.

4.2. Demographic Survey Analysis

In this subsection, pertinent information for study demographic data was summarized as captured in Part A of the questionnaire. In any study, this information is necessary as a means of verification that a field visit was carried out. A sample of 108 staff of KRA representing 84 percent of the targeted sample of 128 returned the questionnaires physically from the various KRA Departments within Southern Region , were analysed using SPSS version.20. As recommended by Kothari (2008), a social study is sufficient for statistical analysis with 51 percent response rate. At 84 percent, this study response was therefore well above the recommended response rate for a social science study. Kothari (2008), further asserts that in highly sensitive studies like crime, drugs, deadly disease and addictions that employ snowballing designs, even 1 percent response rate is adequate to make strong analysis.

4.2.1. Gender distribution of KRA respondents

From the study results presented in Figure 2, 62% of the respondents were male and 38% were female operating in various KRA office departments. Even though this was not a study variable, the results are in line with the findings of Odhiambo (2015) who observed that the KRA had very few female staff and even suggested that there should be a balancing exercise to correct the anomaly.

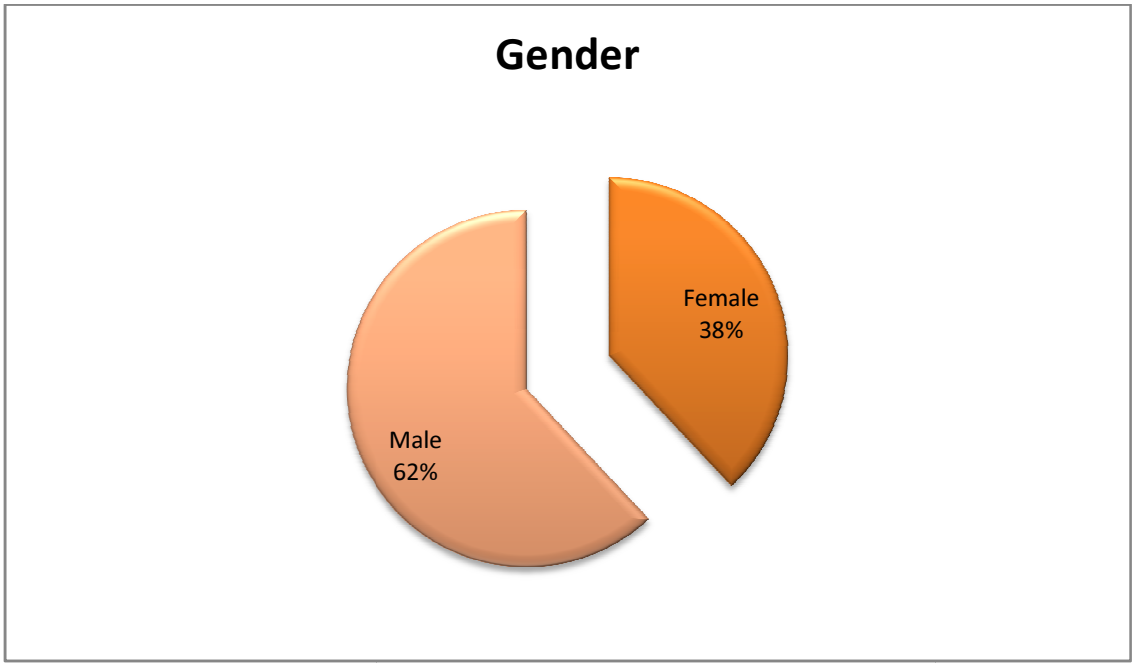


FIGURE2: Gender Distribution of KRA Respondents

4.2.2 *Education background*

TABLE2: Academic Background with Gender

Academic Level	**Frequency**	**Gender**		**Percentage**
		M	F	
Certificate and Diploma	15	10	5	14
First Degree	36	20	16	33
Master's Degree	48	31	17	45
PhD Holders	9	6	3	8
Totals	**108**	67	41	100

In terms of education, 45 percent of staff had attained a Masters level degree, 33 percent were first-degree holders and a combined 14 percent for the low cadre had diploma and certificate qualifications. Top scholars at doctorate level were a minority at 8 percent. Similarly, staff had indicated various lengths of stay at the KRA including 11 percent at 1-3 years, 24 at 3-5 years, 30 percent at over 10 years while the majority 35 percent had worked for between 6 to 10 years at the KRA. The information from the analysis on the demographic data indicates clearly that the respondents were of sound academic backgrounds and that they had adequate experience of working at KRA to understand the various systems of tax reforms administration. Again this is in support of scholars including Odhiambo (2015), Simbanegavi (2015) and Omondi (2014) who indicated that there was a high level of academic achievement at the tax office as compared to other state corporations.

4.3. Descriptive Analysis of Independent Variables andDependent Variable

This section deals with the analysis of individual study variables, which include the independent variables and the dependent variable. Tax collection at KRA was the dependent variable while internal processes reforms, tax payer segmentation reforms, staff welfare reforms and tax audit reforms formed the independent variables.

4.3.1 *Respondents perception of the internal processreforms*

The question on internal process reforms sought to establish the extent to which effective implementation of ITMS, Simba System and introduction of flow Meters had contributed to effective tax collection. Using a likert scale of 1 to 5 adopted from Mburu (2011) study, results from Table 3 indicate that the highest ranked perception was that *i*Tax had improved processes with a mean score of 4.24 followed by the perception that introduction of flow meters had improved tax collection at mean score of 4.19. The reforms least perceived to be effective by the respondents were implementation of ICMS and general process reforms with mean scores of 4.01 and 3.72 respectively. As a guide, the question helped in determining the qualities best seen in the reforms chosen by the majority of respondents which in this case was the *i*Tax. The assumption for the study was that all other qualities to be observed would be based on the selected internal reform process by the respondents and this would form the foundation for having an effective tax collection at the KRA.

From the above findings, the high response rate for iTax could be attributed to the ease with which taxpayer's access the *i*Tax system popularly known as the *i*page .Since inception, KRA

embarked on marketing iTax as the best tax system in East Africa. A lot of resources were channeled towards training both staff and taxpayers on how to use the system. Just like the Mpesa services, to make the services accessible to all, KRA ensured that iTax centers were available in all HudumaCentres across the country. Step by step user guides were also developed both in pdf and video format and can easily be accessed on the KRA website. They clearly indicate the steps to be taken from updating *i*Page to filing returns. KRA went a step further in its effort to make the system user friendly by introducing the mobile platform. Taxpayers can now file and pay their tax liability vide MPesa platform thereby reducing the queues at the KRA offices.

Respondents Perception of the Internal Process Reforms

TABLE3: Respondents Perception of Internal Processes Reforms

Perceived Leader	Mean Score	Standard Deviation	Max	Min
*i*Tax	4.24	1.34	4.73	3.24
Flow Meters	4.19	0.19	4.18	3.97
ICMS	4.01	1.11	4.61	2.78
General Internal Processes	3.72	0.26	4.15	2.14

The standard deviations are well within the threshold of statistical analysis as the scores are less than both the minimum and maximum figures. More so, the standard deviations have not gone over the mean score making the analysis fir for interpretation on the information generated from

study field. The IPRs are a key source of indication as to how the staff are aligning to the overall tax reforms and this was evidenced in the study by Ohemeng and Owusu (2015) as well as Mlilo and Netshikhulwe (2017). However, other scholars including Moyi (2003) and Mburu (2011) have disputed the impact of internal reforms arguing that they were not very significant in their affecting the tax collection efficiency. The results are there in the balance between those who advocate for internal reforms and those who are against them as a key mover of tax collection efficiency.

4.3.2 *Respondents perception on taxpayer segmentationreforms*

The study question on perceived taxpayer segmentation effect sought to find out to what extent the characteristics of such segmentation had played a role in effective tax collection at the KRA. From the scores of Table 4, the most perceived effect was "Formation of Medium and Small Tax Office" with a mean score of 4.41 followed by "Formation of Real Estate Office" which scored 4.35 on the 5-point likert scale. A moderate score of 4.30 was recorded for "Segmentation increased efficiency" with the least score being on the "Formation of Large Taxpayer Office" which had a mean score of 3.31. This result is in line with what Kanti (2014) established in studying tax reform policies in Kenya. Similarly, Karingi and Wanjala (2005) concluded that tax segmentation was significant in the quest for efficient tax collection.

TABLE4: Perceived Tax Payer Segmentation Reforms

Segmentation characteristics	Mean Scores	Standard Deviation
Formation of Medium and Small Tax Office	4.41	0.98
Formation of Real Estate Office	4.35	1.25
Segmentation increased efficiency	4.30	1.21
Formation of Large TaxPayer Office	3.31	0.21

The standard deviations for the mean scores again were all less than the corresponding mean indicating that the data analysis was fit for further discussion without any bias. This means that the standard deviations ranging from 0.21 to 1.25 had achieved the safe threshold for reliable statistical analysis and interpretation.

4.3.3 R*espondents perception on staff welfare reforms*

This sensitive question on staff matters sought to determine the extent to which staff welfare reform initiatives had affected tax collection. The results tabulated in Table 5 indicate that "Periodic salary reviews" scored the highest ratings with a mean score of 4.60 on the 5-point likert scale. This was followed closely by "Introduction of Performance Bonus "with a mean score of 4.55 on the 5-point likert scale. A medium score of 3.90 was recorded for "Regular Training and Refresher Courses" while the lowest score came from "Provision of Adequate Housing" at a mean of 3.49.

Periodic salary reviews acted as a big motivation to the tax collection efforts and staff attested to their increased happiness with such measures. The upward mobility for salary ranges that have been taking place was clearly having an effect in all sectors of the KRA, as witnessed in the consistent attendances by employees with good completion of their daily work. Many scholars have supported the view that staff welfare reforms were key in overall tax reforms with evidence from Mirera (2013), Enrico-Gloria (2013) as well as Baingana (2011) all concluding that a well-motivated staff was bound to be effective in performing their duties including effective tax collection. Other scholars including Gor (2014) and Jack (2009) argue against paying too much attention to the staff reforms. It is also notable that Crivelli and Gupta (2014) totally advocate against too much staff welfare reforms since staff are well paid to do their duties.

TABLE5: Perceived Staff Welfare Reforms

Staff Welfare Reforms	Mean Score	Standard Deviation
Periodic salary reviews	4.60	0.67
Introduction of Performance Bonus	4.55	1.34
Regular training & Refresher Courses	3.90	1.37
Provision of Adequate Housing	3.49	0.83

The standard deviations for the Welfare reforms were equally reflective of the data collected with none of the figures ranging from 0.67 to 1.37 going over the produced mean scores for each of the factors in the staff welfare variable.

4.3.4 *Respondents perception on tax audit reforms*

In this section, the question on tax audit reforms sought to explore the extent to which the tax audit reforms had affected tax collection at the KRA. The results tabulated in Table 5 indicate that generally there was a mild effect on the collection of tax due to the implementation of tax audits. From the tabulated results in Table 6, both "Risk based audits" and "Indepth tax audit approach" scored the highest ratings but a low mean score of 3.20 on the 5-point likert scale. This was followed by "Formation of investigation and enforcement office" with a mean score of 2.44 on the 5-point likert scale. The least score was recorded at 2.20 for "Implementation of Informer Reward Scheme".

The above analysis shows that most respondents prefer risk based audits over in depth audits. The justification for such preference may be that fact that in depth audit requires more time and skills as compared to risk-based audits. Risk based audit entails the identification of certain risk areas and allocating resources to audit them. This in most cases shortens the time taken to complete audit and when qualified officers are involved in such audits, the audit yield is normally significant. Unlike an indepth audits which have wider scope. The officers are therefore forced to review all areas, which is not only time consuming but also tedious. On the other hand, formation of the investigation office has not been fully embraced by the respondents as they feel that it was formed to investigate their affairs.Attari et al (2014) pointed out that training for audit functions was key in adopting tax audits reforms. Other scholars including Bird (2010) and Chilibasi (2014) have concluded that there is much more than common training for the difficult tax audits. The scholars noted that most staff did not easily adopt the intricate audit standards as indicated in most trainings.

TABLE6: Tax Audit Reforms at KRA

Tax Audit characteristics	**Mean Score**	**Standard Deviation**
Risk based audits	3.20	0.22
In-depth tax audit approach	3.20	1.01
Formation of investigation and enforcement office	2.44	1.15
Informer Reward Scheme	2.20	0.73

The standard deviations for each of the items in tax audit reforms were ranging from 0.22 to 1.15 and hence suitable data was being analysed for interpretation since none of the standard deviations was going above the study mean scores for tax audit reforms. In other words, the standard deviations were well within the acceptable statistical requirements.

4.3.5 *Respondents perception on tax administration reforms*

This subsection sought to examine the extent to which the tax administration reforms had affected tax collection at the KRA. As indicated in Table 7 results show a high mean of 4.62 on "Boosting Employee Morale" followed by "Reduced over-reliance on donor funding" with a mean score of 4.48. Other scores include a mean of 3.22 for "Improved tax payer confidence" and 3.14 from "Increased efficiency and effectiveness". The least score was recorded from "Sealed loopholes and reduced tax evasion" with a mean of 2.62.

Tax administration reforms boosted employees' morale as they simplified the way of doing business. For an officer to accomplish a certain task, all they need is a computer and internet connectivity unlike in the earlier years when we had manual systems. On the issue of sealing loopholes and reducing evasions, most respondents feel that KRA needs to protect their systems

from hackers. Recently, mischievous officers colluded with outsiders to tamper with the taxpayers ledgers leading to revenue losses. The results are in line with other scholars including Chuke and Tarila (2018), Baingana (2011) and Khamis (2012) who argue that this would not have been possible had government departments developed strong firewalls. Again, there is an argument from some scholars including Mlilo and Netshikulwe (2017) to the effect that, tax administration reforms have had a little impact in reducing over reliance to donor funding. This could be due to the fact that Africaneconomiesare still growing and therefore there is a huge demand for funds that cannot be raised through taxation. This is supported by Omondi (2014) who concluded that the Kenya government is normally forced to rely on donor funding to fund mega development initiatives as opposed to relying on tax collected by KRA.

TABLE7: Tax Administration Reforms at KRA

Tax Administration Reforms	**Mean Score**	**Standard Deviation**
Boosting Employee Morale	4.62	0.61
Reduced over-reliance on donor funding	4.48	0.29
Improved tax payer confidence	3.22	1.21
Increased efficiency and effectiveness	3.14	0.81
Sealed loopholes and reduced tax evasion	2.62	0.67

The standard deviations for each of the analyzed tax administration reforms were well within the limits of statistical analysis. These figures ranging from 0.29 to 1.21 fell below any of the mean scores for tax administration reforms.

4.3.6 *Dependent variable analysis*

The final subsection of the descriptive analysis sought to find out to what extent the dependent variable was changing when analyzed on its own. Results of analysis in Table 8 shows that the mean of effective tax collection at the KRA is significantly different from the mean of effective tax administration reforms. The p value of the mean difference between the group of ''Small Extent and Very Great Extent'' is 0.005 which is less than 0.05 implying that the mean difference 13.27 is significant. The mean difference between agree level and do not agree is 8.63 which is also significant with a p value of 0.047 (less than 0.05).

The study results are in line with other scholars including Owusu (2013), Khamis (2012) and Simbanegavi (2015) who indicated in their findings that the variances of the dependent variable clearly indicates that a slight change in the independent variable will have an impact on the dependent variable. Locally then, this means the reforms implemented by KRA have an impact revenue collected. From the above analysis, the reforms had achieved the results to a significant level although more still needs to be done to get the optimum returns in terms of tax collection.

TABLE8: Dependent Variable - Tax Collection at KRA

(I) Extent to which tax collection affects tax reforms	(J) Extent to which tax reforms affect tax collection	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Upper Bound	Lower Bound
Very Great	Low	13.27472(*)	4.59420	.005	4.1785	22.3709

	None	8.62871(*)	4.29290	.047	.1291	17.1283
Moderate	Moderate	-13.27472(*)	4.59420	.005	-22.3709	-4.1785
	None	-4.64600	3.18387	.147	-10.9498	1.6578
Small Extent	Moderate	-8.62871(*)	4.29290	.047	-17.1283	-.1291

*The mean difference is significant at the .05 level.

4.4 Multiple Regression Analysis Results

This section presents the results of the tests of regression analysis using the study regression model and exploring the relationships between each of the variables and effective tax collection at the KRA. The Multiple regression analysis model was specified as follows

; $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$.

In this study, the dependent variable was Tax collection (TC) with the independent variables listed as Internal Processes Reforms (IPR), Taxpayer Segmentation Reforms (TSR), Staff Welfare Reforms (SWR) and Tax Audit Reforms (TAR). The abbreviations are specifically used as inputs in the computer system. Using the coefficients in Table 9, the regression equation was fitted as follows:

TC = 5.224+.319TAR -.839IPR-.385TSR +.051SWR

From the regression results, it can be interpreted that for every effort made by KRA towards tax collection, it would be 5.224 times more successful without instituting any reform measures. This is represented by the constant value 5.224 in the regression equation above. Otherwise

with the reforms in place, any efforts to institute Internal Process Reforms(IPR) and Taxpayer Segmentation Reforms (TSR) will lead to a decrease in TC by 0.839times and 0.385 respectively. However, if KRA focusses on Tax Audit Reforms (TAR) and Staff Welfare Reforms(SWR), then the tax collected (TC) by KRA will increase by 0.319 and 0.051 times respectively

TABLE9: Correlation Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.224	.273		19.120	.000
	IPR	-.839	.068	-.612	-12.403	.000
	TAR	.319	.060	.246	5.292	.000
	SWR	.051	.043	.061	1.170	.245
	TSR	-.385	.066	-.296	-5.835	.000

a. Dependent Variable: ETC

The t-values of the statistics are a clear indication that IPR, TAR and TSR are statistically significant since their corresponding P-values are less than 0.05 while SWR is statistically insignificant since its P-value (0.245) is greater than 0.05. Internal Processes Reforms (IPR), and Taxpayer Segmentation Reforms (TSR) have a significant negative effect on tax collection while Tax Audit Reforms (TAR) has a significant positive effect on tax collection. However, Staff Welfare Reforms (SWR) has an insignificant positive effect on tax collection. This variable require more studies in a further research by forthcoming scholars.

Model Summary

From of the regression the model summary can be shown in Table 10indicating that 85.2% of the variation on tax collection at the KRA can be explained by the predictor variables IPR, TPS, SWL and TAR(R^2 = .852, adjusted R^2=.846).

TABLE10: Model Fitting

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.923[a]	.852	.846	.2016

a. Predictors: (Constant), TSR, SWR, TAR, IPR

To test the significance in the model, data from ANOVA is displayedinTable 11. The result indicated that the model is significant in explaining the variance in effect of tax reforms on effective tax collection in Kenya (p=.000). The level of significance at 95 percent was quite high at p=0.000. The F value at 148.057 with p significance at 0.00 is an indication that there are differences in the strength of the reform variables that affect effective tax collection.

TABLE11: ANOVA (b)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.065	4	6.016	148.057	.000[b]
	Residual	4.185	103	.041		
	Total	28.250	107			

a. Dependent Variable: TC

b. Predictors: (Constant), TSR, SWR, TAR, IPR

Correlation Matrix

The study variables sought to find the effectiveness of tax reforms in Kenya with specific variables targeted towards achieving that effectiveness. These included internal processes (IPR), Tax payer Segmentation (TSR), Staff Welfare Reforms (SWR) and Tax Audits (TAR).

Results in Table 12 indicate Pearson's product moment correlation coefficients of the reforms that make tax collection effective. From the table results, Effectiveness was significantly related to IPR (r=-.214, p<.05); TSR (r=-.317, p<.05); SWR (r=-.306, p<.05) and to some extent, TAR (r=.401, p<.05).

The testing of correlation significance at 95% (p = 0.05) found that there was weak correlation between IPR and SWR. Further testing using 99% (p = 0.01) significance indicated weak correlation between the variables TSR and SWR as well as between TAR and IPR since the absolute value of 0.401 is greater than p=0.01.

TABLE12: Correlation Matrix

Variables		IPR	TSR	SWR	TAR
1. IPR	Pearson Correlation	1			
	Sig. (2-tailed)	.214			
	N	107			
2. TSR	Pearson Correlation	-.317	1		
	Sig. (2-tailed)	.050	.		
	N	107	107		
3. SWR	Pearson Correlation	-.306(*)	.588(**)	1	
	Sig. (2-tailed)	.014	.001	.	
	N	107	107	107	

4. TAR	Pearson Correlation	-.401(**)	.100	.517	1
	Sig. (2-tailed)	.005	.600	.072	.
	N	107	107	107	107

* Correlation is significant at the 0.05 level (2-tailed).

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

CHAPTER FIVE

SUMMARY,CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

Chapter five presents the summary of findings and conclusions from the findings in chapter four in the first section. In the second section,recommendations of the study and areas of further research are also presented.

5.2 Summary of Findings

The study sought to determine how internal processes reforms, tax payer segmentation reforms, staff welfare reforms and tax audit reforms affect tax collection at KRA. The summary of findings is presented with respect to each objective as follows in the next subsections.

5.2.1 Internal processes reforms and tax collection at KRA

Our findings in chapter four established a significant negative relationship between internal process reforms and tax collection at KRA. The findings are in line with other studies on revenue collection reforms in Philippines where majority of the systems implemented were a bit cumbersome to use, forcing people to resort to unorthodox means to evade tax payments.Locally, studies on the tax reforms in the country concluded that the systems implemented at the KRA were to an extent not very friendly hence making KRA not to meet the preset targets. Scholars have observed that at the Integrated Tax Management System (ITMS), Vehicle Management System (VMS) and flow meters effectiveness can occur when teaming up with other

stakeholders in the economy and that KRA should come up with more versatile systems that encourage taxpayers to use them.

5.2.2 Tax payer segmentation reforms and tax collection at KRA

There is a significantnegative relationship between taxpayer segmentation reforms and tax collection at KRA. This agrees withother local studies which have observed that KRAfailed with taxpayer segmentation strategy as it concentrated only on corporate clients and the formal sector.Corporate clients wereaccorded special treatment and most resources allocated to them, leaving out the informal sector with no incentives to want to pay taxes. Scholars have concluded that if KRA expected to increase tax collection, it should accord same treatment to all taxpayers.

As demonstrated by the local studies, there can only be positive relationship when fairness is observed.The negativity normally comes from the feeling that some segments have more benefits or enjoy better services than others.Taxpayer will be willing to comply with tax laws when there is equality and benefits of tax collection are equally shared.

5.2.3 Staff welfare reforms and tax collection at KRA

Staff welfare reforms represent one of the most well studied variable in the field. From the findings, an insignificant positive relationship between staff welfare reforms and tax collection was established. Other scholars who studied the phenomena established a positive correlationbetween the two variables. Similarly, scholars have alluded that increased bonuses and training motivates staff to perform greatly. Other scholars have concluded that without adequate training, staff will hinder implementation of any reforms initiatives. Finally, local

scholars observed that sixty percent of staff felt that affordable housing and training were key to performance improvement.

5.2.4 Tax audit reforms and tax collection at KRA

There is a significant positive relationship between tax audit reforms and tax collection at KRA.Scholars have advocated for the adoption of risk-based audits and in depth tax audit approaches.Other scholars have faulted the use of informers as most informers were motivated by monetary rewardsand not patriotism.There is also support for whistle-blower strategybeing successfully used if adequate measures to protect whistle blowers were put in place.

5.3 Conclusion

In conclusion, tax audit reforms and staff welfare reforms have a positive effect on tax collected at the KRA while internal process reforms and taxpayer segmentation reforms have a negative effect on tax collection at KRA. However, other studies have pointed that both internal process reforms and taxpayer segmentation reforms could have a positive impact in revenue collection if the internal processes are simplified, stakeholders are involved in the implementation or where taxpayers are treated equally notwithstanding their contribution to the tax kitty.

5.4 Recommendations of the Study

The study makes recommendations based on the conclusions in the previous sector in which the government and its policy makers should investigate further on why specific reform measures have not been very effective particularly the tax administration and tax audit reforms.From the findings, it is evident that the tax administration reforms implemented by KRA have not had the expected impact on revenue collection and sealing tax leakages. Therefore, KRA should consider bench marking with countries whose reform initiatives have addressed the above issues.

5.5 Limitations of the Study

The study was constrained by the difficulty to get timely responses but through adequate communication and consistent telephone conversations, a very high response was achieved. Another limitation was the difficulty in accessing the top management, but this was overcome through dialogue with senior managers and a request to use the use the drop-pick method for the field questionnaires. Due to time constraints, the study was carried out in under one month with limited funds for data collection. However, borrowing and loaning from various sources solved this fully. Finally, the reading resources were quite hard to mine but this was overcome through the continuous visits to various libraries with adequate materials to cover the study requirements.

5.6. Recommendationsfor Further Studies

This study was conducted using a survey population from the KRA Southern Region Staff. The conclusion derived from this study may be considered opinion of Southern Region Staff. Therefore, KRA can commission further studies on the same topic in other regions so that they can get a true picture of how staff rate their efforts in tax administration reforms.

REFERENCES

Achieng, N. D. (2014). *Business Procee Reengineering Practices and Performance of Kenya Commercial Bank.*

Adisa, A. D. (2011). *The Determinants of Value Added Tax Revenue in Kenya.*

Agbonkhese, A. O., &Asekome, M. O. (2014). Impact of public expenditure on the growth of Nigerian economy. *European Scientific Journal, ESJ*, *10*(28).

Attari, M. I. J., Taha, R., & Farooq, M. I. (2014). Tax Revenue, Stock Market and Economic Growth of Pakistan. *ActaUniversitatisDanubius. Œconomica*, *10*(5).

Authority, K. R. (2012). Forth Corporate Plan 2009/10-2011/12.

Ayanda, A. &. (2008). Impact Assessment of Business Process Reengineering on Organizatoional Performance. *European Journal of Science,Volume 7 Number 1*.

Baingana, E. (2011). Corporation tax administration and revenue performance Uganda Revenue Authority in Eastern Uganda. *Unpublished MA Thesis*, Makerere University, Kampala, Uganda

Bastani, S., &Waldenström, D. (2018). How should capital be taxed? Theory and evidence from Sweden.

Bird, R. (2010). *Economic Premise: Smart Tax Administration.* Poverty Reduction & Economic Management (PREM) Network.

Chilibasi, D. C. (2014). *Effect of Value Added Tax Reforms on Revenue Collection in Kenya Revenue Authority.*

Chuke, N.E. &Tarila, B. (2018). Public Expenditure and National Income: Time series evidence from Nigeria, Research Gate

Clark, C. (2011). *Critical Limit Hypothesis* (11th Ed), Atlantic Publishers & Distributors, Baltimore

Cooper, D. R., & Schindler, P. S. (2009). *Business Research Methods* (9th ed.). New York: McGraw- Hill.

Crivelli, E., & Gupta, S. (2014). Resource blessing, revenue curse? Domestic revenue effort in resource-rich countries. *European Journal of Political Economy*, *35*, 88-101.

Dominick, M. (2002). A critical appraisal of the theories of government expenditire growth in South Africa, Research Gate

Enrico-Gloria, R. M. (2014). Analysis of Philippine Income Tax Reforms. *Business & Development Research*.

F, K. P. (2014). The Effects of Tax Policy Reforms on Tax Revenue in Kenya. *Journal of Business and Change Management*, pp 601-620.

Gor, F. O. (September 2014). VAT Reforms and Revenue Productivity in Kenya(1990-2010). *Journal of Economics*.

Graetz, M. J. (2011). *Tax Reform 1986:A Silver Anniversary ,Not a Jubilee.* Tax Analysts.

Group, A. D. (2010). *Domestic Resource Mobilization for Poverty Reduction in East Africa: Kenya Case Study.* Regional Departmene East A.

Hummel, D. (2016). Civic crowd-funding: a potential test of the voluntary theory of public finance for public capital goods. *Journal of Public Budgeting, Accounting & Financial Management*, *28*(2), 171-195.

Hunt, J. P. (2016). Taxes and Ability to Pay in Municipal Bankruptcy. *Wash. L. Rev.*, *91*, 515.

IMF. (2015). *Current Challenges In Revenue Mobilization: Improving Tax Compliance.* Washington DC: International Monetary Fund.

Jack, N. E. (2009). *Tax Reform in Kenya: Policy & Administrative Issues.* Columbia: Columbia University Academic Commons.

Jacobs, P. A. (2007). *Effect of Corruption on Tax Revenues in the Middle East.* IMF Working Paper WP/07/270.

Jacobs, P. A. (2007). Effects of Corruption on Tax Revenues in the Middle East. *IMF Working Paper WP/07/270*.

Jetty, A. &. (2012). *Improving Tax Compliance in Developing Economies: Evidence from Bangladesh.*

Kanti, P. (2014). The Effects of Tax Policy Reforms on Tax Revenue in Kenya. *Journal of Business & Change Management Vol 2(3)*, 601-620.

Kanyi, P. (2014). The effects of tax Policy Reforms on Tax Revenues in Kenya. *Journal of Business & Change Management*, 601-620.

Karingi, S.N. &Wanjala, B., 2005, 'The Tax Reform Experience of Kenya', Research Paper 2005/67, United Nations University World Institute for Development Economics (UNU WIDER), Finland

Kern, A., &Amri, P. D. (2016). Political Credit Cycles-Myth or Reality?. *Journal of Business & Change Management*, 202-218.

Khamis, M. Y. (2012). *Measures to improve revenue Collection in Zanzibar.* Zanzibar Institure for Reaserch & Public Policy .

Kiriti, J. K. (2002). *Structural adjustment,poverty&Economic growth:An analysis for Kenya.* Nairobi: African Economic Research Consortium.

Kothari, R.C. (2008). *Research Methods: Methods & Techniques*. Irwin Publishers. New Delhi India.

KRA. (2012). Fourth Strategic Corporate Plan. Government Printers, Nairobi

Lindahl, E. (ed.) 1958, *Knut Wicksell: Selected Papers on Economic Theory*, Harvard University Press, Cambridge, MA.

Lucotte, Y. (2012). Adoption of inflation targeting and tax revenue performance in emerging market economies: An empirical investigation. *Economic Systems*, *36*(4), 609-628.

Mburu, T. C. (2011). Analysis of responsiveness of tax revenue to chnges in National Income in Kenya between 1986-2009. *International Journal of Business & Social Sciences Vol 2 No 21*, 275-287.

Mirera, N. D. (2013). *Effects of Tax Audit on Revenue Collection.*Unpublished MBA Thesis, University of Nairobi, Kenya

Mlilo, M. &Netshikulwe, C. (2017). Re-testing Wagner's Law: Structured breaks and disaggregated data for South Africa, ResearchGate

Moyi, M. K. (2003). *Tax reforms & revenue mobilzation in Kenya.* Nairobi: The African Research Consortium.

Moore, M. (2014). Revenue reform and statebuilding in Anglophone Africa. *World Development*, *60*, 99-112.

Moyi, M. K. (May 2003). *Tax Reforms & Revenue Mobilization in Kenya.* Nairobi: African Research Consortium .

Nkwe, N. (2012). Tax Payers' Attitude and Compliance Behavior among Small Medium Enterprises (SMEs) in Botswana. *Business and Management Horizons*, *1*(1), 113.

Odhiambo, J. (2015). *Business Process Re-Engineering as an approach to Strategic Change at Kenya Revenue Authority* . Nairobi: University of Nairobi .

Ohemeng, F. L., &Owusu, F. Y. (2015). Implementing a Revenue Authority Model of Tax Administration in Ghana An Organizational Learning Perspective. *The American Review of Public Administration*, *45*(3), 343-364.

Omondi, W. T. (2014). Effect of tax Reforms On Bouyancy and Elasticity of the Tax System in Kenya:1963-2010. *Internationa Journal of Economic & Finance,Vol 6,No 10.*

Onakoya, A. B., & Afintinni, O. I. (2016). Taxation and economic growth in Nigeria. *Asian Journal of Economic Modelling*, *4*(4), 199-210.

Owusu, F. (2013). *Implementing a Revenue Authority Model of Tax Administration in Ghana:An Organizational Learning Perspective* . Iowa State University: Department Of Community & Regional Planning.

Pinshaw, T. D. (2009). *The Road to improved Compliance.* Mc Kinsey & Company.

Programme, G. S. (2012). *Addressing Tax Evasion & Tax Avoidance in Developig Countries.* GIZ.

Ross, J. M. (2018). Welfare Effects of Selective Taxation: Economic Efficiency as a Normative Principle. *For Your Own Good: Taxes, Paternalism, and Fiscal Discrimination in the Twenty-First Century. Arlington, VA: Mercatus Center at George Mason University*.

Simbanegavi, R. E. (2015). Tax& Expenditure Reforms In Africa: An Overview. *Journal of African Economies,Volume 24*.

Thomas Cantens, G. R. (2007). Reforming Customs by measuring performance: A Camerron Case Study. *World Customs Journal ,Vol.4,No2*.

Wanjala, S. N. (2006). *The Tax Reform Experience in Kenya.*Unpublished M.A Thesis, Jomo Kenyatta University of Agricultural Technology, Nairobi

Weinzierl, M. (2018). Revisiting the Classical View of Benefit-based Taxation. *The Economic Journal*, *128*(612), F37-F64.

APPENDINCES

APPENDIX 1: QUESTIONNAIRE

Introduction

I am a Masters student at KCA University carrying out a research on the ''**EFFECT OF TAX ADMINISTRATION REFORMS ON TAX COLLECTION AT THE KENYA REVENUE AUTHORITY**''. You have been selected as a respondent in this study. Kindly tick the correct box that best express your objective opinion and write your opinion on the open-ended questions. This is an academic research and confidentiality is strictly emphasized and the findings of the study will be used strictly for academic purposes. I appreciate your time and thank you in advance.

Part A: General Information

1. Gender Male ( ) Female ( )

2. Highest level of qualification

KCPE ( )

KCSE ( )

1st Degree ( )

Masters and above ( )

3. How long have you been at KRA?

1- 3 years ( ) 3-5years ( ) 6 –10years ( ) Over 10 years ( )

Section B: Internal Processes Reforms

To what extent do you agree with the following statements on internal process reform initiatives?

Internal Process Reforms	Small Extent (1)	Moderate extent (2)	Great extent (3)	Very Great extent (4)
4. Internal process reforms lead to efficiency and effectiveness on tax collection at KRA				
5. Implementation of ITMS has improved tax collection at KRA				
6.Implemenation of ICMS led to increased tax collection at KRA				

7. Introduction of flow meters led to increased tax collection at KRA				

SECTION C: Tax Payer Segmentation Reforms

To what extent do you agree with the following statement on taxpayer segmentation reforms initiatives?

Taxpayer Segmentation Reforms	Small Extent (1)	Moderate extent (2)	Great extent (3)	Very Great extent (4)
8.Taxpayer segmentation increased efficiency in tax collection at KRA				
9. Formation of Large Taxpayer Office led to increased tax collection from large corporations				
10. Formation of Medium & Small Tax Office enhanced tax collected from medium and small entities				
11. Formation of Real Estate Office led to increased tax collected from the Real Estate Sector				

Section D: Staff Welfare Reforms

To what extent do you agree with the following statements on staff welfare reform initiatives?

Staff Welfare Reforms	Small Extent (1)	Moderate extent (2)	Great extent (3)	Very Great extent (4)
12.Regular training & refresher courses improve tax collection at KRA				
13.Introduction of performance bonus schemes motivate employees to collect more tax				
14. Periodic salary reviews motivate employees to collect more tax				
15. Provision of adequate housing boosted employees morale to achieve higher tax collection targets				

Section E: Tax Audit Reforms

To what extent do you agree with the following statements on tax audit reforms initiatives?

Tax Audit Reforms	Small Extent (1)	Moderate extent (2)	Great extent (3)	Very Great extent (4)
16. Adoption of in-depth tax audit approach increase tax collection at KRA				
17. Implementation of risk based audit system has led to increased tax collection at KRA				
18.Formation of Investigation and Enforcement Office has led to increased tax collection at KRA				
19. Implementation of informer reward scheme lead to increased tax collection				

Section F: Tax Administration Reforms at KRA

To what extent do you agree with the following statements on tax administration reform initiatives at KRA?

Tax Administration Reforms at KRA	Small Extent (1)	Moderate extent (2)	Great extent (3)	Very Great extent (4)
20.Tax administration reforms have increased efficiency and effectiveness at KRA				
21.Tax administration reforms have sealed tax loopholes and reduce tax evasion at KRA				
22.Tax administration reforms at KRA have boosted employees morale				
23. Tax administration reforms have improved taxpayer confidence in KRA operations				

24. Tax administration reforms at KRA have reduced over reliance on donor funding.				

Section G: Tax Collection at Kenya Revenue Authority

To what extent have the following reforms improved tax collection at KRA?

Reform at KRA	Small Extent (1)	Moderate extent (2)	Great extent (3)	Very Great extent (4)
25. Tax administration reforms				
26. Tax Audit Reforms				
27. Staff Welfare Reforms				
28. Tax Payer Segmentation Reforms				
29. Internal Process Reforms				

30. Outline any other possible reforms that could boost tax collection at the Kenya Revenue Authority

……..

……

……

……

……

……

Thank you for participating

THE END

APPENDIX 2: EXPANSION OF THEORIES USED IN STUDY

1. Wagner's law of increasing state activities

This law known as the law of increasing state spending, is a principle named after the German economist, Wagner. He first observed it for his own country and then for other countries. The theory holds that for any country, that public expenditure rises constantly as income growth expands. The law predicts that the development of an industrial economy will be accompanied by an increased share of public expenditure in terms of GDP.

The advent of modern industrial society will result in increasing political pressure for social progress and increased allowance for social consideration by industry.

Wagner's law suggests that a welfare state evolves from free market capitalism due to the population voting for ever-increasing social services as general income levels grow across broad spectrums of the economy. In spite of some ambiguity, Wagner's statement in formal terms has been interpreted others as follows:

As progressive nations industrialize, the share of the public sector in the national economy grows continually. The increase in State Expenditure is needed because of three main reasons. Wagner himself identified these as (i) social activities of the state, (ii) administrative and protective actions, and (iii) welfare functions. The material below is an apparently much more generous interpretation of Wagner's original premise. These can be interpreted as socio-political to include the state social functions expand over time including retirement, insurance and natural disasters both internal and external as well as environmental protection programs. In terms of economics, this points towards science and technology advance. Consequently there is an increase of state assignments into the sciences, technology and various investment projects. Similarly for historical considerations, the state resorts to government loans for covering contingencies, and thus the sum government debt and interest amount grow, which means that it is an increase in debt service expenditure.

Furthermore, the theory points that there has been considerable increase in revenue to the governments due to the economic developments over the years, thereby leading to a boost in public expenditure. Again, the government simply cannot ignore the demands that people make regarding various services, especially when there is an increase in revenue collection at a constant rate of taxation. This theory also observes that during times of war or crisis tax rates are increased by the government to generate more funds to meet the increase in defense expenditure. This is known as the displacement effect and it can be created when the earlier lower tax and expenditure levels are displaced by new and higher budgetary levels. But it remains the same even after the war or crisis as people will continue to spend anyway.

Key points in the Law

1. In Progressive societies, the activities of the central and local government increase on a regular basis.
2. The increase in government activities is both extensive and intensive.
3. The governments undertake new functions in the interest of the society.

4. The old and the new functions are performed more efficiently and completely than before.
5. The purpose of the government activities is to meet the economic needs of the people.
6. The expansion & intensification of government function & activities lead to increase in public expenditure.
7. Though Wagner studied the economic growth of Germany, it applies to other countries too both developed and developing.

2. Peacock and Wiseman theory of Public Expenditure

In their theory, Peacock and Wiseman emphasize the time pattern of public spending trends rather than striving for a genuine positive theory of public sector growth. The main thesis of the authors is that public expenditure does not increase in a smooth and continuous manner, but in jumps and jerks or step like fashion. Their analysis involves three related elements including displacement, inspection and concentration effects. Using empirical data for the British economy after 1890, Wiseman and Peacock observe that the relative growth of the public sector in the United Kingdom has followed a discrete step like pattern rather than a continuous growth pattern. It is notable that during the period under study they found that, government fiscal activities, in the country have risen step by step to successive new plateaus. Moreover the absolute and relative increases (steps upward) in taxing and spending activities by the British government have generally taken place during periods of major social disturbance or crisis such as war or depression.

These kinds of changed fiscal situation cause the previous lower tax and expenditure levels to be replaced by new, higher, budgetary levels. This movement from the older level of expenditure and taxation to a new and higher level is called the displacement effect after the social disturbance has ended; the new level of tax is tolerated by the society.

The emerged new levels of tax tolerance make the society willing to support higher levels of public expenditure. In other words the lax threshold has increased. Thus there is no strong motivation to return to the lower pre-crisis level of taxation. Specifically, over the secular period, 1890 -1955, this displacement procedure occurred several times in Great Britain. Thus when the major social disturbance ends, no strong motivation exists for the society to return to the lower pre-disturbance level. Again, the higher government revenues are used to support permanently higher levels of public sector allocation. Similarly, inspection effect is the inadequacy of revenue in comparison with the 'required' public expenditure. Again, in addition to the displacement and inspection effect, Peacock and Wiseman, also give narration about a

concentration (scale) effect. It refers to the apparent tendency for the central government economic activity to become an increasing proportion of total public sector economic activity, when a society is experiencing economic growth. It can be noted that, this occurs, because central government has to initiate a number of measures to sustain higher economic activity. Since each major disturbance leads to a situation in which, the central government assuming a larger proportion of the total national economic activity, the net result is **"the concentration effect".** However, Wiseman – Peacock hypothesis appears to be quite relevant. At the outlet, the hypothesis looks quite convincing. It emphasizes jerks and jumps in public expenditure, on account of unusual and abnormal situations.

According to Prof. Aronson, for Peacock and Wiseman expenditure growth is sporadic rather than constant and revenues create their own expenditures. However, we must not forget the fact that, an account of the advance of the economy and the structural changes therein, there are constant and regular increments in public expenditure and revenue. This then indicates that public expenditure has a tendency to grow on account of a systematic expansion of government activities, both in terms of intensity and quality. It also shows that, the regular and dynamic changes in state activity and public spending caused by macro variables like population growth, urbanization, awareness of civic rights on the part of citizens and political and social commitments on the part of democratic governments voted to power are major factors giving a big push to upward trend in public expenditure. But in the long run, the influences of these factors on government spending were not systematically analyzed by Wiseman and Peacock in their hypothesis. However, Bernard. P. Herber sincerely argues that the Peacock – Wiesman hypothesis of governmental spending trends, is much more modest in what it intend to explain than in Wagner's hypothesis. Otherwise, the fact is that, both the Wagner's and Peacock. Wiseman narrations contribute a lot in understanding the process of public sector growth in industrialized nations.

Key pints in the theory

1. The rise in public expenditure greatly depends on revenue collection. Over the years, economic development results in substantial revenue to the governments, this enabled to increase public expenditure".

2. There exists a big gap between the expectations of the people about public expenditure and the tolerance level of taxation. Therefore, governments cannot ignore the demands made by people regarding various services, especially, when the revenue collection is increasing at constant rate of taxation.
3. They further stated that during the times of war, the government further increases the tax rates, and enlarges the tax structure to generate more funds to meet the increase in defence expenditure. After the war, the new tax rates and tax structures may remain the same, as people get used to them. Therefore, the increase in revenue results in rise in government expenditure.

3. Clark's Critical Limits Theory

The Clark's theory as a hypothesis is basically concerned with the tolerance level of taxation. It was developed by Colin Clark immediately after the Second World War. It draws conclusion from the empirical data drawn from several western countries for inter-war period. Clark wants to point out that in an economy; inflation emerges when the share of the government sector, as measured in terms of taxes and other receipts, exceeds 25 per cent of the aggregated economic activity in the country. Specifically, when public expenditure reaches 25 percent of the total economic activity or aggregate amount of expenditure in the country, the tax payers, ability to pay more tax is exhausted. Public expenditure beyond this limit, means, disincentive to producers and fall in production due to taxation beyond tolerance level. According to Clark, the basis or pillar of the hypothesis is that (a) when tax collection by government exceeds the critical limit of 25 percent of gross national product, the income earners are badly affected by reduced incentives and decrease in their productivity. They produce less than what they are capable of doing. This leads to a reduced supply. In short, taxation beyond the critical limit, adversely affect the incentive to produce and invest; and that (b) even if the budget remains balanced, increase in government expenditure would constitute rising demand. Therefore inflation is generated from mal-adjustment between demand and supply. We note that even though Colin Clark's critical minimum effort thesis is well accepted by the business community, its significance in the academic circle is very limited. Colin Clark gave undue emphasis on his critical limit of 25 percent. Presently, a number of countries are incurring public expenditure much beyond their limit, without facing worse situation of inflationary pressure. Impact of budgetary spending on generation of inflationary situation; depend upon the manner and nature in which public expenditure is incurred. However, it is clear that inflation is a complex economic phenomenon influenced and characterized by a number of mutually exclusive and inter-dependent factors. This therefore means that we can only fairly conclude that in a marked economy, increasing state activity may create inflationary pressure. Finally, Colin Clark's idea on public expenditure is associated with the idea of tax tolerance. He says that, public expenditure should not exceed more than 25 percentage of the total expenditure since it may create inflation even in the balanced budget. Further, higher public expenditure will increase the income of the people. Which may tends to reduce production because of fear on higher tax payment among people. In fact, Colin Clark highlighted the precautions for public expenditure.

APPENDIX 3: KRA REFORMS HISTORY IN STUDY

Kenya's tax system has undergone more or less continual reform over the last twenty years. On the policy side, rate schedules have been rationalized and simplified, a new value-added tax introduced, and external tariffs brought in line with those of neighboring countries in East Africa. At the same time, administrative and institutional reforms have taken place. Kenya has the trappings of a modern tax system, including, for example, a credit-invoice VAT, a PAYE individual income tax with graduated but arguably moderate rates, and a set of excise taxes focused on the usual suspects (alcohol, cigarettes, gasoline, etc.). However, with up to 70 percent of GDP produced and possibly as much as 75 percent of labor employed in the informal sector, the ability of the tax system to raise sufficient revenue with minimal distortions is severely circumscribed. In such an environment, raising around one-fifth of GDP in tax revenue is likely to impose very large distortionary costs on the economy. Continued reform of both the policy instruments and the administrative and enforcement capacity of the tax system is therefore imperative. In general the tithe levied was never more than affordable and often in cases of famine, the chief of the tribe as well as the more successful farmers would give food to the famine-affected members of the tribe. None died of starvation as long as there was food in the tribe and tithes were paid on the basis of a portion of production, thus applying the principle of 'productivity'. 'Economy', was maintained by the levy of a fixed percentage of produce. Hence a 'simple' system based mainly on voluntary payment which resulted in a fairly administratively efficient system. The tithe was remitted to the chief after a harvest usually in form of produce making it both 'convenient' and 'flexible'. Since the payment was in the form or perishable goods it ensuring that a ruler would not demand too much as he would only take as much as he himself needed. Thus, in the application of tithes, there was always an element of almost scrupulous fairness and equity. In addition, despite a general concept of voluntary payment of tithe, there was an unwritten system of quotas of production. 16 As far as traders were concerned, this was applied on the basis of the amount of goods being ferried into or out of the tribal territory and was a fixed percentage levied by the warriors of the tribe who took the traders to the king to pay tribute directly. There are no recorded instances of traders being kept waiting for days or of payment being refused and thus the principles of efficiency, simplicity by accepting any form of payment including in the goods being traded. The principle of equity was used in the levy of this form of 'passage right' tax, it was usually a fixed amount for passage through land based on the numbers of people or amount of goods. However, inefficiency may have been evidenced by the fact that the entire trading party had to present themselves to the chief or the king and give him his tribute personally. Some scholars have argued that every member of the chiefs family expected presents and thus the cost of movement was relatively higher going through some tribes vis a vis others but there are no reports of cripplingly high tributes that in turn made trade impossible or even curtailed it. The trade despite the tributes levied during this period remained extremely viable and allowed to trade to prosper. In

conclusion, these diverse tribal based tax systems were at best extremely rudimentary, simple and operated at a very small scale. It was suitable for the economy of the time and was fairly successful in its time frame and the state of the economy at that point in time. There are many taxes that define taxation as a system. Hut Tax Regulation imposed a tax of one rupee, payable in kind or through labour, upon every native hut in British East Africa. A subsequent amendment to the law allowed the tax to be levied specifically upon the owner of the hut. By 1910, other special provisions were added to the Native Hut and Poll Tax Ordinance to provide for the distress of property, or three-month imprisonment for non-payment of tax due. However, the direct taxation of land values in Africa has a close nexus with the large-scale alienation of land in the settler economy. Steady settler pressure resulted in an increase in the rate of hut tax or poll tax to 5 rupees in 1915 and again in 1920 to 8 Rupees. Subsequent African protests and unrest led to a reduction in the basic rate to 12 shillings, which remained unchanged for the remainder of the interwar period. Collections of £100 or Kenya shillings 75,000 in 1914-5 increased to no less than £658,414 in 1921- 22. Thereafter it settled back to an annual average return of £500,000-600,000. In addition, Africans played indirect taxes in the form of customs duty on imports that added another £200,000-250,000 to the tax bill during the 1920s. Raymond L. Buell has estimated that the total value of cash crops marketed by Africans in 1924 fell short of the total African tax bill by some £320,000. The British Crown deliberately began the application of tax law in Kenya through the Hut and Poll tax by completely ignoring tax principles. On of the reasons for the application of this tax was to pull the African population into a capitalist labour market. The tax continued to play a major role in the labour system as a means of indirect coercion as well as a major source of state revenue. The tax weapon had the desired effect in forcing more Africans into wage employment, the Kikuyu ethnic group in particular responded to its pressure by entering the labour market in large numbers. Though some scholars believe this tax was introduced to induce Africans to work on European farms, in reality the hut and poll taxes were crude wealth taxes that also served as a proxy for property rating to rural areas. The second tax is Land Tax which the protectorate government in East Africa argued in early 190845 for preserving the means of obtaining some share of any future appreciation in the value of the land, particularly because much of the land acquired by Taxation without Principles: A Historical Analysis of the Kenyan Taxation System 287 settlers was not being developed. Thus, when the Crown Land Bill was presented in 1908, it became the first legislation to propose the levying of a graduated land tax on individual holdings as a sound basis for land policy in East Africa.47 The 1908 Bill defined important aspects of the new system of land taxation. Any Crown land lease rated at more than Kenya shillings 180 rent would be charged a land tax in addition to such rent at the rate of six cents for every 75 cents of rent.48 The Bill also provided that whenever any individual or corporation held more than 50,000 acres; the land tax would be increased by four times the amount that would otherwise be payable. Section 137(c) states further if an individual or corporation holding more than 100,000 acres should be compelled under penalty of Kenya shillings 325 per day to divest him of such surplus land. The Crown Land Bill was rejected in 1908 because of strong opposition from the settlers. A subsequent proposal that eventually became the Crown Lands Ordinance in 1915 conceded to the settlers' demands by deleting the provisions for land taxation. The 1915 Ordinance helped in shaping current land policy throughout the region: It helped the emergence of a land market by legalizing

the free transfer and mortgaging of land. It also allowed land leases to be granted for 99 years, and rent reassessments at one percent and two percent of the unimproved value of the land during the 33rd and 66th year respectively. The Ordinance allowed the colonial government to promote the systematic registration of urban lands and the privatization of land rights throughout East Africa. Furthermore, it promoted commercial agriculture and urbanization that served as the catalyst for defining individual and private family rights to land in terms that are more exclusive. In spite of its strong legacy, the 1915 Land Ordinance failed in one important respect, although occupiers were required to make improvements to the land within a specified period and to maintain such improvements after that, it did not include any provisions against speculative accumulation of land. The third one is Graduated introduced in 1933. The Act was modelled on the Colonial Income Tax Ordinance which itself was a 'simplified synthesis' of the United Kingdom Income Tax Act of 1920. Now graduated taxes on global income would have been considered revolutionary because non-Africans were liable to a flat poll rate and an Educational Tax. This tax was applied for the first time in 1934 at rates graduated according to the taxpayer's income with certain amendments. In addition, while this tax was in force, the former non-native poll tax, which was not graduated, was to remain in abeyance. It was assessed on every non-native male or female resident in Kenya. The fourth, Income Tax was first introduced in Kenya in 1921, it was severely criticised by the Bowring Committee and when a large proportion of taxpayers failed to pay, the Government chose to abolish rather than enforce the law. This was not surprising considering that the first attempt to apply income tax in 1799 in Great Britain reached a similar end when Prime Minister Pitt established Pitt's income tax on all of Great Britain (but not Ireland), which was a 10% on a person's total income above £60 per year. It was to be paid in six equal instalments to finance the war against Napoleon. It established the principle of taxing income rather than expenditure. The reaction of the people was, This is a horrible war - the rapacity and greed of the Government go beyond all limits...it is now actually proposed to place A TAX ON INCOMES! It is a vile, Jacobin, jumped up Jack-in-office piece of impertinence - is a true Briton to have no privacy? Are the fruits of his labour and toil to be picked over, farthing by farthing, by the pimply minions of Bureaucracy? This piece of legislation was introduced in the other East African countries of Tanganyika, Uganda and Zanzibar in 1949 with the rates, allowances and taxes being identical for all the countries. In 1952, a common legislation was enacted by the High Commission, which applied to the High Commissions Territories of Kenya, Tanganyika and Uganda. The duties of the Commission were limited to enacting legislation for administrative and general provisions excluding rates and allowances, which were left to territorial governments to legislate. In practice, however these tended to be uniform In 1952 the three Ordinance governing income tax- The Income Tax Ordinance 1940, The War Taxation (Income Tax) Ordinance 1940 and the War Taxation (Income Tax) (amendment) Ordinance 1941 were combined to what become known as The East African Income Tax (Management) Act 1952. In 1953 the Tea Ordinances of all three East African Countries of Taxation were repealed. However, each government (colonial) reserved the power to fix the rates and allowances in each country. The East African Tax department administered the tax, which was under the East African High Commission formed in 1948. Tanganyika and Uganda joined in 1950, three years later, and the three separate Income Tax Acts for the East African countries were enacted. In 1954, the rates of personal income tax were

set at 20 shillings for anyone earning less the £60, for earnings between £ 60- 120 charge of 40/- and for earnings over £120 a charge of 60/-. In 1956, a Commission of Enquiry into the Administration of Income was established and was chaired by Sir Erick Coates. Its report was published in 1957. A similar follow up report from the Select Committee on the Administration of Income which had been formed to look into and set out the nature and operation of the Income Tax Act. The 1958 Act was revised and renumbered to become Chapter 24 of the Laws of the East African Community in 1970. Finally, the Customs and Excise Duty became the chief duty of the British Governor to collect customs revenues and to issue passes to ships sailing from Mombasa. The customs tariff was fixed at 5% ad valorem tax on all items imported or exported by the people of Mombasa and double that amount for all other traders. This scale had been agreed between Captain Owen and Mazrui. In addition, passes were issued for one dollar each. The world financial crisis of 1921-2 and the abolition of income tax in Kenya led certain experimental adjustments of the duties imposed mainly on luxury articles in order to maintian revenue. However, these adjustments were peculiar to Kenya and consequently interfered with the principle of a uniform tariff operating in the customs union of Kenya and Uganda they were found in practice to be unworkable. Following the inter-territorial customs conference in 1922 the customs tariff, which survived with minor modifications and the changes made were as follows. Firstly, the extended application of specific rates of duty in place of ad valorem rates. Secondly, the application of heavy ratings to luxuries such as spirits and tobacco and a 30% ad valorem rate for other luxuries such as perfumes. Thirdly, the application of a low rating of 10% ad valorem rate to some industrial commodities and an extension of the list in the interest of industrial and agricultural development. Fourthly, the application of certain protective rates of duty. Finally, subject to the above, a blanket rate of duty of 20% ad valorem. As early as 1922, it was already stated that indirect taxation had been one of the most neglected subjects in the study of taxation in Kenya. The unavailability of statistical data on private consumption expenditure and all its ramifications, the unreliability of family budget statistics and the general belief that indirect taxes do less harm to production than direct taxes, might have indeed induced this attitude of indifference. The introduction of the principle of protective duties followed the recommendations of the Browning Committee of 1922 and was directed to the industries believed to be suited to the colony. Those affected were bacon and ham, butter and cheese, ghee, sugar, timber, wheat and wheat flour. Other indirect taxes imposed by the colonial regime included the Licences, Stamp duties and game licences. It was only in 1927 that the fiscal barrier between the Kenya, Uganda and Tanganyika was completely broken and a system of free transfer of imported goods was imported. The Excise Duties Agreements Ordinance of 1931, enacted simultaneously in the three countries, provided for the maintenance of identical rates of excise duties in these countries. The first excise duty to be levied in Kenya and in East Africa was the Beer Ordinance (No. 5 of 1923) was imposed on beer. During the first year of its operation, the tax collected was only £425. The revenue from excise taxation became important only when sugar, tea, cigarettes and tobacco were brought into the tax net in 1931. In 1949 the Customs and Excise Revenues Allocation Act was enacted repealing the Ordinance (Cap 264). The Excise Tariff Ordinance of 1954 consolidated past legislations, as amended by the various Finance Ordinances. The Customs Tariff Ordinance of 1958 brought about a complete revision of customs rates. It introduced a consistent pattern of rates by removing various anomalies,

brought greater administrative simplicity and excluded most producers' requirements. Most of the items liable to import duty were placed into one of the following categories: a general rate of 22% ad valorem, a general assisted rate of 11% ad valorem (which applied to those goods, which it was felt should pay some duty, but not at the general rate) and a protection rate at 30% ad valorem. In addition to the ad valorem rates were certain specific rates on goods such as spirits, tobacco goods, toilet preparations and piece goods. In 1961, pools and betting on overseas horseracing was brought into the tax net in Kenya. A system of licensing pool promoters and their agents was instituted and all the pool bets were taxable at the rate of 10% of each bet.3 The Pools Ordinance (No. 11 of 1961) applied to all pools including fixed and betting pools. The Finance Amendment of the 1963/64 financial year placed a tax impost on the stake money for losing bets, and 5% of the winnings on the winnings on the winning bets.

APPENDIX 4: NORMANLITY DIAGNOSTIC TEST EXPLAINED

This section is meant to help future researchers interested in using normality test.

An assessment of the normality of data is a prerequisite for many statistical tests because normal data is an underlying assumption in parametric testing. There are two main methods of assessing normality: graphically and numerically.

This "quick start" guide will help you to determine whether your data is normal, and therefore, that this assumption is met in your data for statistical tests. The approaches can be divided into two main themes: relying on statistical tests or visual inspection. Statistical tests have the advantage of making an objective judgement of normality, but are disadvantaged by sometimes not being sensitive enough at low sample sizes or overly sensitive to large sample sizes. As such, some statisticians prefer to use their experience to make a subjective judgement about the data from plots/graphs. Graphical interpretation has the advantage of allowing good judgement to assess normality in situations when numerical tests might be over or under sensitive, but graphical methods do lack objectivity. If you do not have a great deal of experience interpreting normality graphically, it is probably best to rely on the numerical methods.

If you want to be guided through the testing for normality procedure in SPSS Statistics for the specific statistical test you are using to analyse your data, we provide comprehensive guides in our enhanced content. For each statistical test where you need to test for normality, we show you, step-by-step, the procedure in SPSS Statistics, as well as how to deal with situations where your data fails the assumption of normality (e.g., where you can try to "transform" your data to make it "normal"; something we also show you how to do using SPSS Statistics). You can learn about our enhanced content in general here or how we help with assumptions here. However, in this "quick start" guide, we take you through the basics of testing for normality in SPSS Statistics.

Methods of assessing normality

SPSS Statistics allows you to test all of these procedures within **Explore...** command. The **Explore...** command can be used in isolation if you are testing normality in one group or splitting your dataset into one or more groups. For example, if you have a group of participants and you need to know if their height is normally distributed, everything can be done within the **Explore...** command. If you split your group into males and females (i.e., you have a categorical independent variable), you can test for normality of height within both the male group and the female group using just the **Explore...** command. This applies even if you have more than two groups. However, if you have 2 or more categorical, independent variables, the **Explore...** command on its own is not enough and you will have to use the **Split File...** command also.

When do we do normality test?

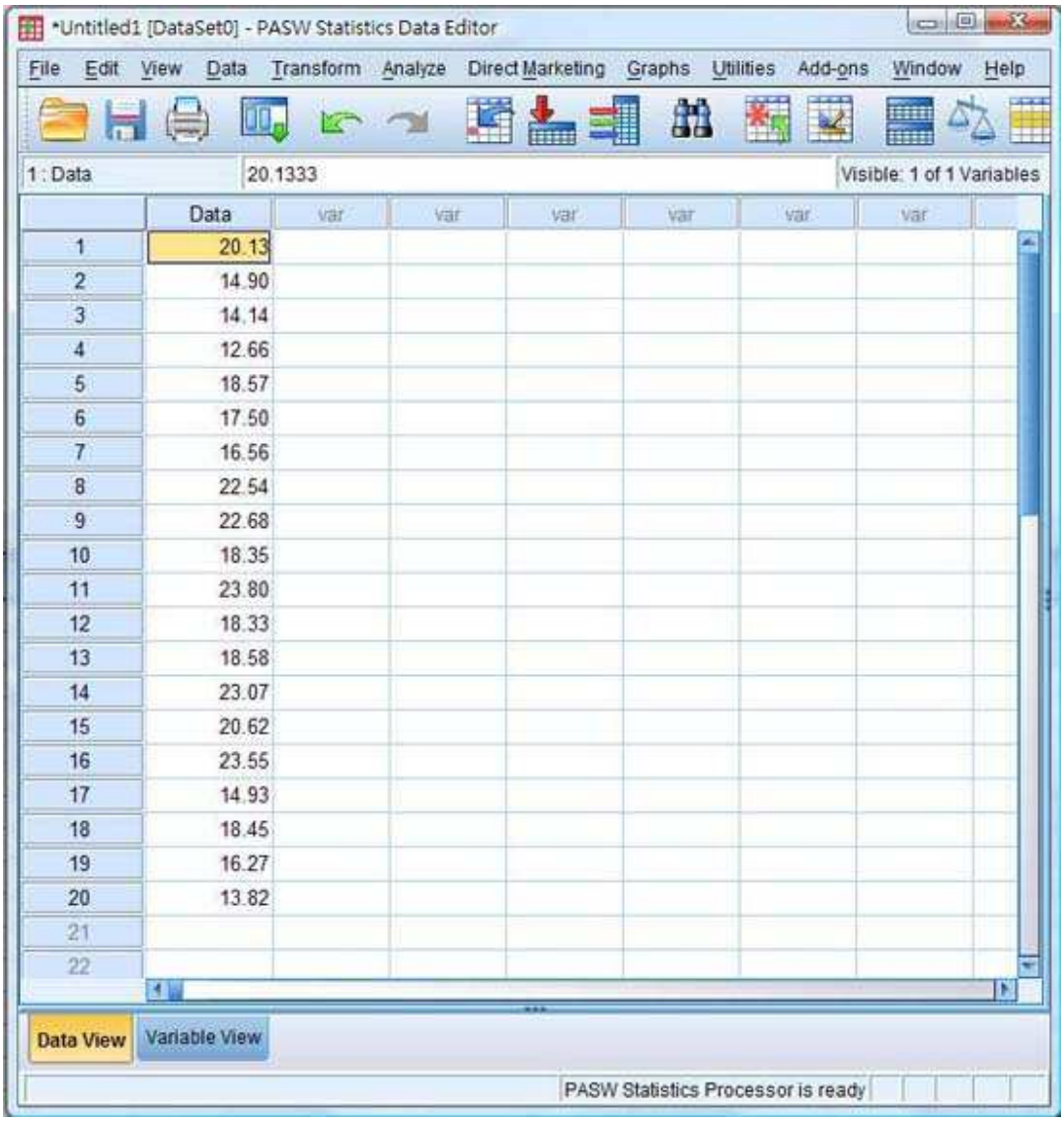
A lot of statistical tests (e.g. t-test) require that our data are normally distributed and therefore we should always check if this assumption is violated.

Example Scenario

Given a set of data, we would like to check if its distribution is normal.

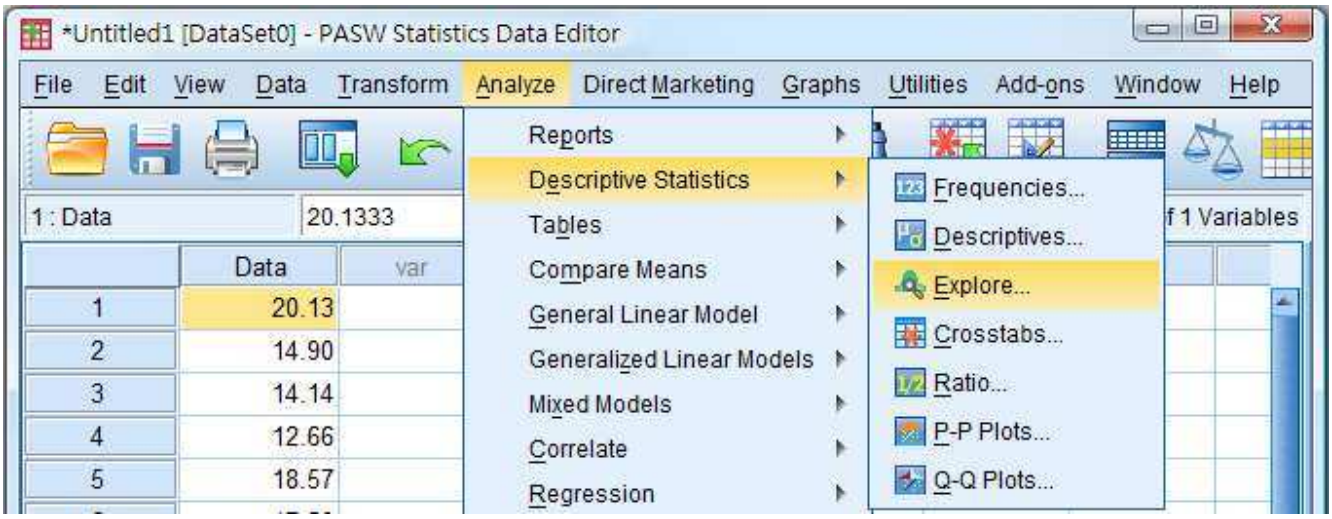
In this example, the null hypothesis is that the data is normally distributed and the alternative hypothesis is that the data is not normally distributed. The dataset can be obtained here.

The data to be tested in stored in the first column.

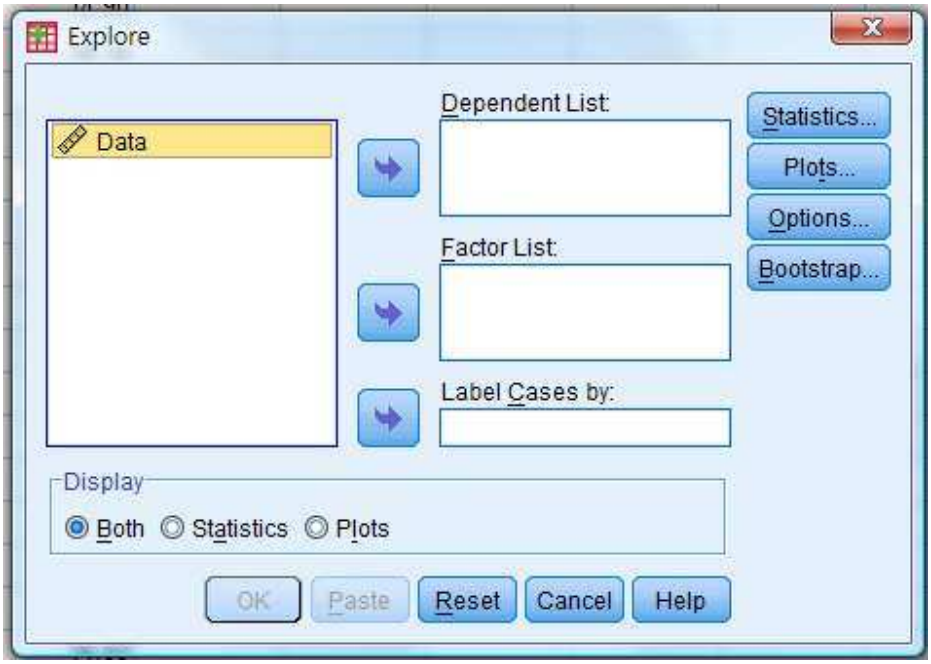


Step 1

Select "Analyze -> Descriptive Statistics -> Explore".

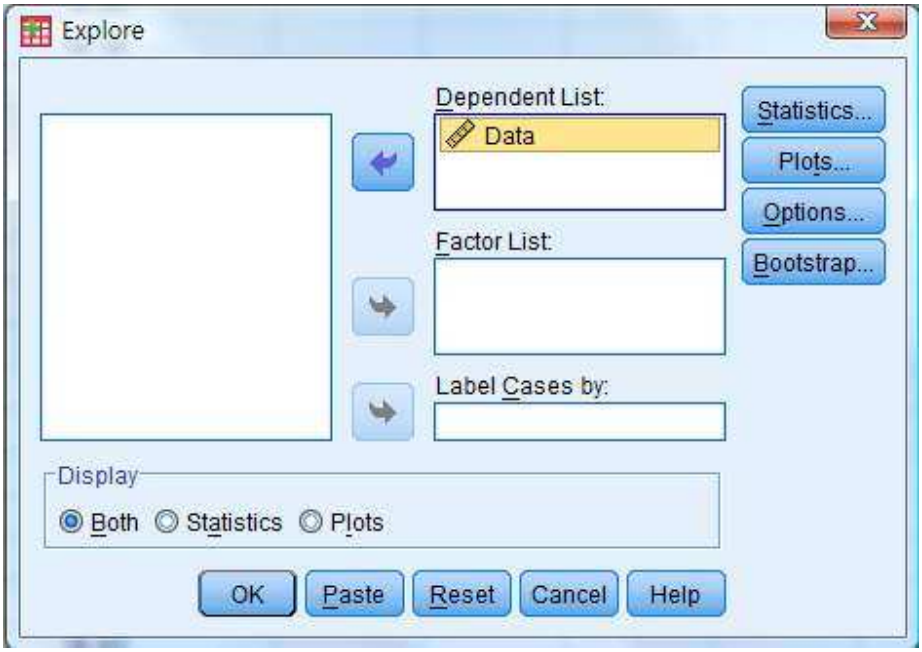


A new window pops out.

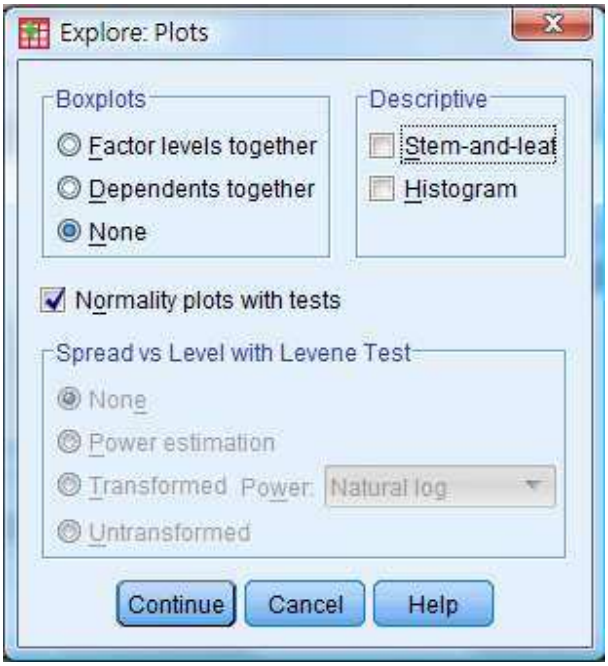


Step 2

From the list on the left, select the variable "Data" to the "Dependent List".

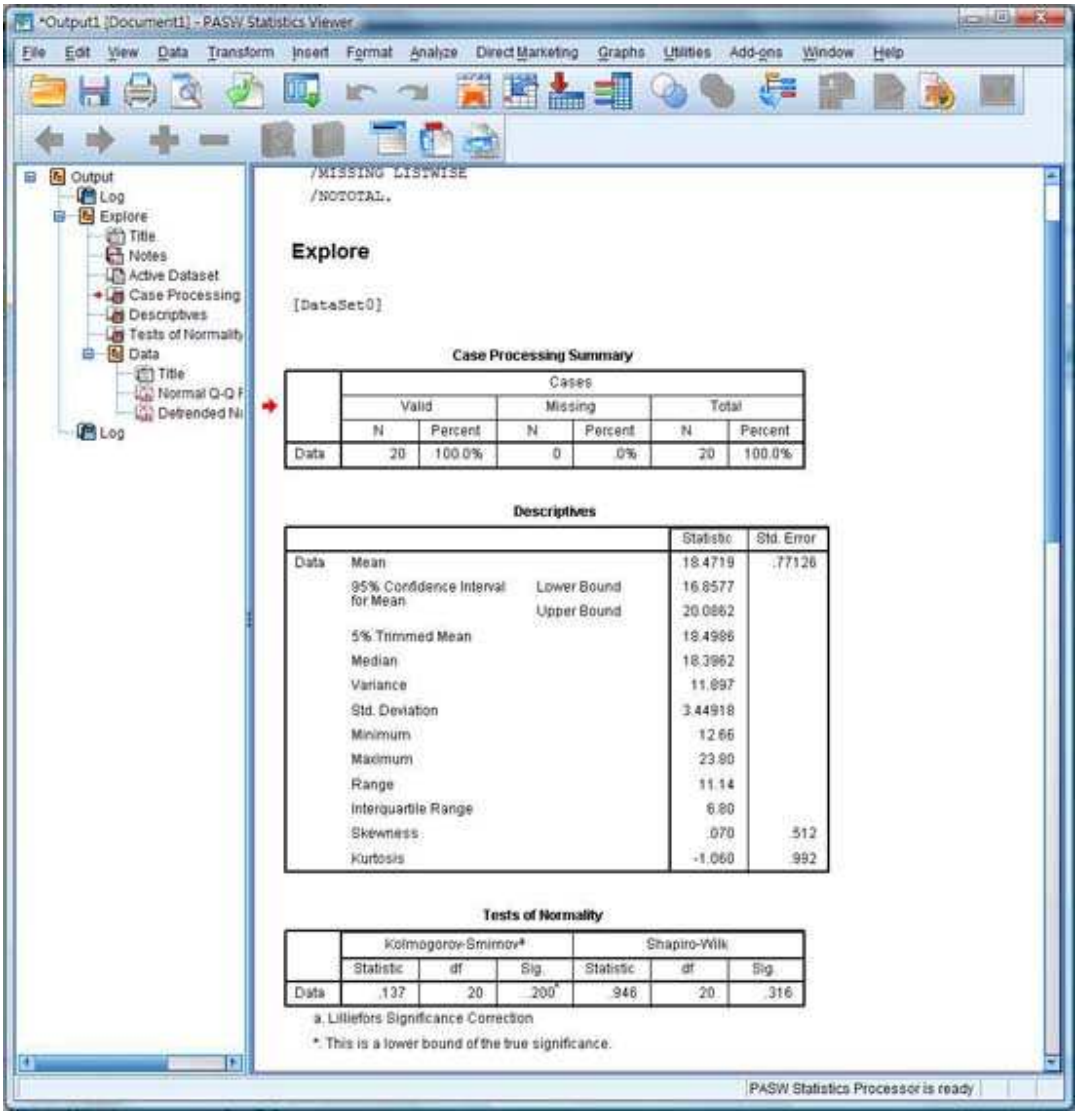


Click "Plots" on the right. A new window pops out. Check "None" for boxplot, uncheck everything for descriptive and make sure the box "Normality plots with tests" is checked.



Step 3

The results now pop out in the "Output" window.



Step 4

We can now interpret the result.

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Data	20	100.0%	0	.0%	20	100.0%

Descriptives

			Statistic	Std. Error
Data	Mean		18.4719	.77126
	95% Confidence Interval for Mean	Lower Bound	16.8577	
		Upper Bound	20.0862	
	5% Trimmed Mean		18.4986	
	Median		18.3962	
	Variance		11.897	
	Std. Deviation		3.44918	
	Minimum		12.66	
	Maximum		23.80	
	Range		11.14	
	Interquartile Range		6.80	
	Skewness		.070	.512
	Kurtosis		-1.060	.992

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Data	.137	20	.200*	.946	20	.316

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

The test statistics are shown in the third table. Here two tests for normality are run. For dataset small than 2000 elements, we use the Shapiro-Wilk test, otherwise, the Kolmogorov-Smirnov test is used. In our case, since we have only 20 elements, the Shapiro-Wilk test is used. From A, the p-value is 0.316. We can reject the alternative hypothesis and conclude that the data comes from a normal distribution.

APPENDIX 5: MULTICOLINEARITY DIAGNOSTIC TEST EXPLAINED

Multicollinearity is a problem that occurs with regression analysis when there is a high correlation of at least one independent variable with a combination of the other independent variables. The most extreme example of this would be if you did something like had two completely overlapping variables. Say you were predicting income from the Excellent Test for Income Prediction (ETIP). Unfortunately, you are a better test designer than statistician so your two independent variables are Number of Answers Correct (CORRECT) and Number of Answers Incorrect (INCORRECT). Those two are going to have a perfect negative correlation of -1. You are not going to be able to find a single least squares solution. For example, if you have this equation:
Income = .5*Correct + 0*Incorrect
or
Income = 0*Correct -.5*Incorrect

From the two, you will get the exact same prediction. Now that is a pretty trivial example, but you can have a similar problem if you use two or more predictors that are very highly correlated. Let's assume you're predicting income from high school GPA, college GPA and SAT score. It may be that high school GPA and SAT score together have a very high multiple correlation with college GPA. For more about multicollinearity, Let's say you already know multicollinearity is bad and you want to know how to spot it. Well, conventionally, people try to look for evidence of things that can only be found from specific conditions without any doubt for example, you cannot have a smoking gun that has not just been used. In simple terms, one cannot have lets say, used banking slips in their pocket by chance. Some banking transaction must have taken place to get the slips in there.
One suggestion some people give is to look at your correlation matrix and see if you have any independent variables that correlate above some level with one another. Some people say .75, some say .90, some say 1. I say that looking at your correlation matrix is fine as far as it goes, but it doesn't go far enough. Certainly if I had variables correlated above .90 I would not include both in the equation. Even if it was above .75, I would look a bit askance, but I might go ahead and try it anyway and see the results.
The problem with just looking at the correlation matrix is what if you have four variables that together explain 100% of the variance in a fifth independent variable. You aren't going to be able to tell that by just looking at the correlation matrix. Enter the Tolerance Statistic, which enables the calculations to take an acceptable limit or extreme in a manner that will not eliminate the fault but still leave adequate room for corrections. To compute a tolerance statistic for an independent variable to test for multi-collinearity, a multiple regression is performed with that variable as the new dependent and all of the other independent variables in the model as independent variables. The tolerance statistic is 1 – R2 for this second regression. This is to remember that R-square, is the amount of variance in a dependent variable in a multiple regression explained by a combination of all of the indepedent variables. In other words, Tolerance is 1 minus the amount of variance in the independent variable explained by all of the other independent variables. A tolerance statistic below .20 is generally considered cause for concern. Of course, in real life, you don't actually compute a bunch of regressions with all of your independent variables as dependents, you just look at the collinearitystatistics.Let's take a look at an example in SPSS, to completely have a mathematical feel of the calculations therein.

The code is below or you can just pick REGRESSION from the ANALYZE menu. Always remember to click on the STATISTICS button and select COLLINEARITY STATISTICS.
Here in the dependent variable that is the rating of problems a person has with sexual behavior, sexual attitudes and mental state. The three independent variables are ratings of symptoms of anorexia, symptoms of bulimia and problems in body perception

```
REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA COLLIN TOL
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT problems
/METHOD=ENTER anorexic perceptprob bulimia.
```

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	3.262	.433		7.532	.000		
	anorexic	.203	.037	.366	5.458	.000	.669	1.495
	perceptprob	.248	.088	.202	2.801	.006	.577	1.732
	bulimia	.109	.034	.193	3.197	.002	.820	1.220

a. Dependent Variable: problems

Let's just take a look at the first variable "anorexic". It has a Tolerance of .669. What does that mean? It means that if I ran a multiple regression with anorexic as the dependent, and perceptprob and bulimia as the independent vairables, I would get an R-square value of .331 (That is 1-0.669). This is simply the opposite of what is calculated. Let's try it. Notice that now anorexic is the dependent variable.

```
REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA COLLIN TOL
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT anorexic
/METHOD=ENTER perceptprob bulimia.
```

b. Dependent Variable: anorexic

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.576[a]	.331	.325	2.35149

a. Predictors: (Constant), bulimia, perceptprob

From the results, it implies that when we do a regression with anorexia as the dependent variable and bulimia and perceptprob as the two independent variables the R-square is .331 . If we take 1 – .331 we get .669 which is exactly the Tolerance Statistic for anorexia in the previous regression

analysis above. As explained, the result is the opposed of the two actions reversed meaning you can work from either view of approach.

So WHY is a tolerance below .20 considered a cause for concern? It means that at least 80% of the variance of this independent variable is shared with some other independent variables. It means that the multiple correlation of the other independent variables with this independent variable is at least .90 (because .9 * .9 = .81) .

Another statistic sometimes used for multicollinearity is the Variance Inflation Factor, which is just the reciprocal of the tolerance statistics. A VIF of greater than 5 is generally considered evidence of multicollinearity. If you divide 1 by .669 you'll get 1.495, which is exactly the same as the VIF statistic shown above. The most important aspect of the calculation is that for whatever figure one gets, the reverse answer should be able to add to 1.

APPENDIX 6: CRONBACH RELIABILITY TEST EXPLAINED

Cronbach Alpha is a reliability test conducted within SPSS in order to measure the internal consistency i.e. reliability of the measuring instrument (Questionnaire). It is most commonly used when the questionnaire is developed using multiple likert scale statements and therefore to determine if the scale is reliable or not.

Example of Cronbach Alpha

A researcher developed a 9-question questionnaire to determine how safe people feel at their work. In addition the questions were on the 5-point Likert Scale with responses ranging from "Strongly agree" to "Strongly disagree". In order to determine if the questionnaire could "reliably" measure the latent variable i.e. feeling of safety, Cronbach alpha test was conducted. The acceptable reliability value is .6. Therefore if your questionnaire's reliability result is more than .6 then your questionnaire is considered "reliable".

Cronbach Alpha in SPSS

- **Step 1:** On the Menu, Click Analyze -> Scale -> Reliability Analysis (Figure 1).

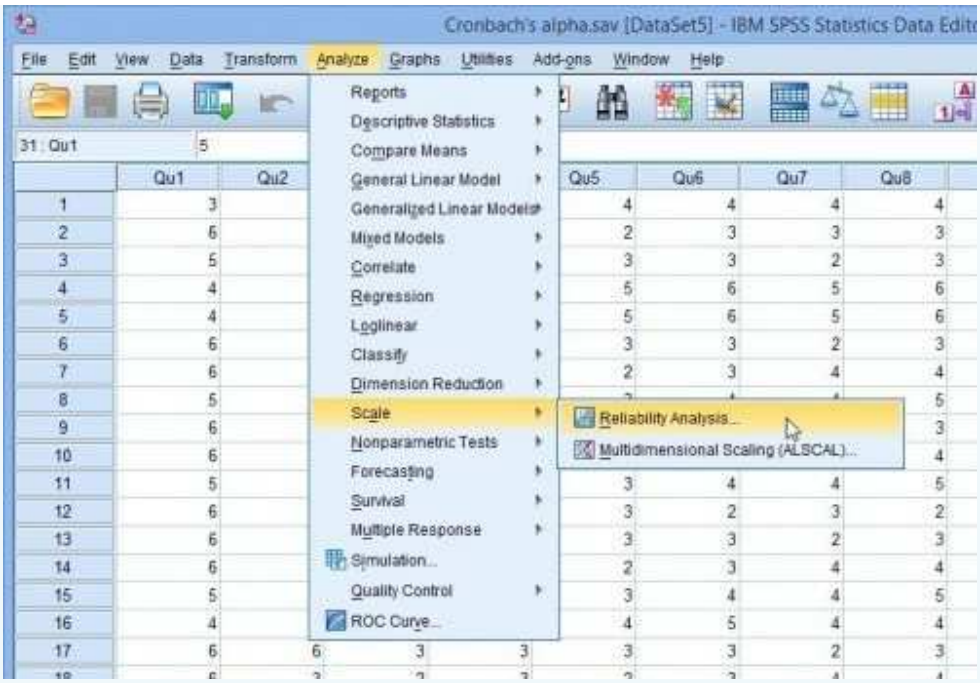


Figure 1: Cronbach Alpha in SPSS

- **Step 2:** Next the Reliability Dialog box would open which is shown below. All the questions which are to be checked for Reliability are transferred to the "Items box" (Figure 2)

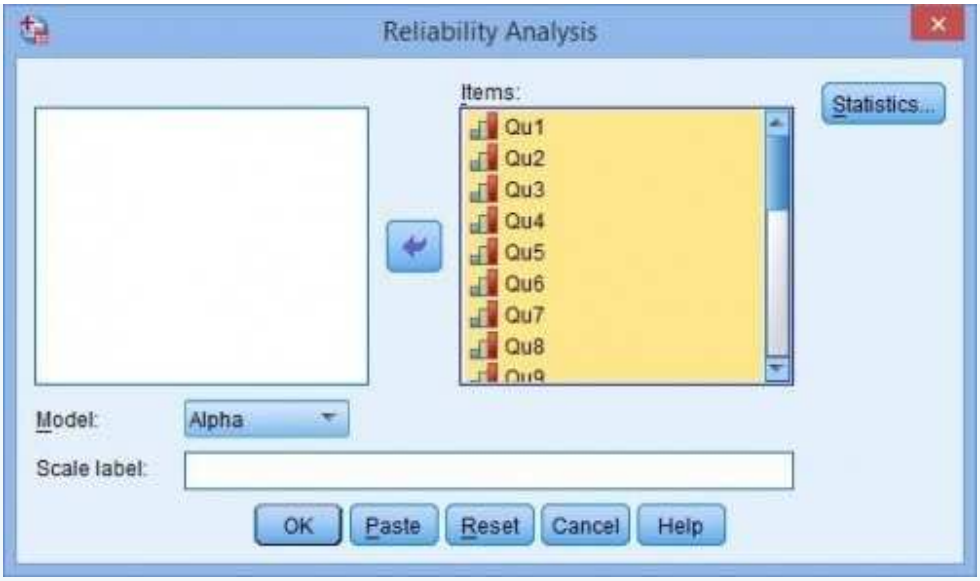


Figure 2: Cronbach Alpha in SPSS

- **Step 3:** Next Click on "Statistics" which lead to another dialog box. Here under "Descriptives for" check Item, Scale, and Scale if Item Deleted. In Inter-Item Check Correlations. Click "Continue" and then "OK" to Run the test (Figure 3).

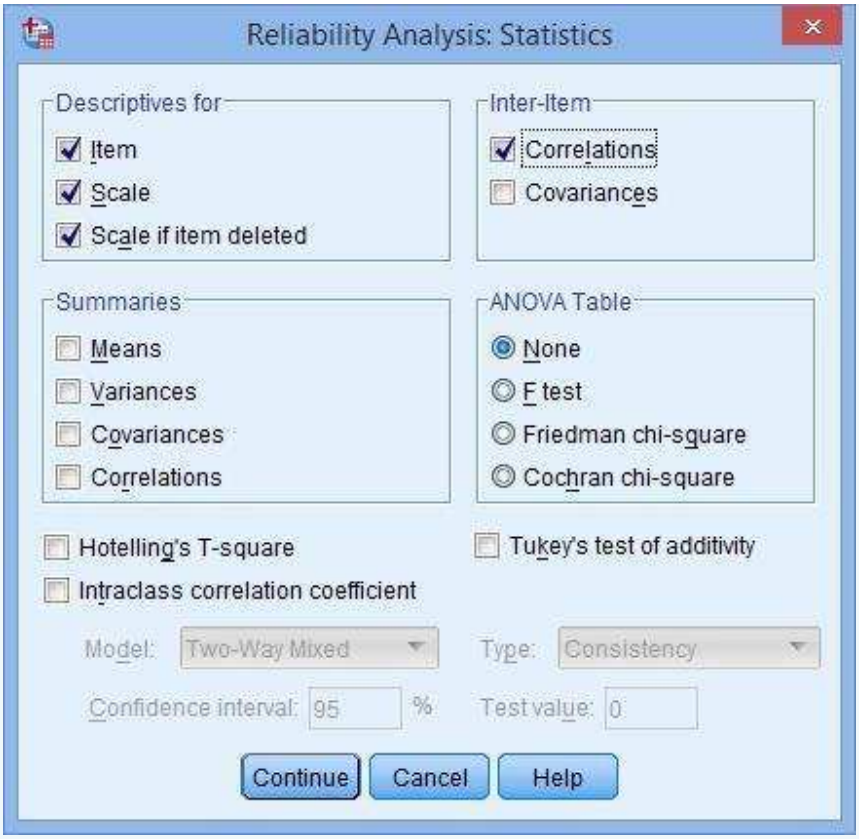


Figure 3: Cronbach Alpha in SPSS

Output and results

Table 1 given below is the Reliability Statistics Table which provides the value for Cronbach alpha which in this case is .805 and reflects high reliability of the measuring instrument. Furthermore, it indicates high level of internal consistency with respect to the specific sample.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.805	.796	9

Table 2 “Item Total Statistics” presents the results for Cronbach Alpha if Item Deleted. It is the measure of Reliability to determine the “Item” which when deleted would enhance the overall reliability of the measuring instrument.

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Qu1	24.20	45.029	.633	.588	.767
Qu2	23.93	47.352	.520	.651	.783
Qu3	24.07	46.638	.654	.899	.767
Qu4	23.40	47.114	.551	.823	.779
Qu5	23.60	51.257	.389	.573	.799
Qu6	24.47	50.695	.372	.693	.802
Qu7	24.07	45.210	.615	.777	.770
Qu8	24.20	56.457	.128	.791	.823
Qu9	24.07	45.210	.589	.610	.774

Table 2: Item Total Statistics

As Table 2 shows above, that other than Question 8, if one delete any other question then the reliability will result lower Cronbach Alpha. However the Corrected Item-Total Correlation value (which denotes the correlation between each item or question within the questionnaire and total reliability score of the questionnaire) for Question 8 is very low i.e. .128 and therefore low correlation indicates that we should consider removing the item from the overall questionnaire. That is the interpretation to be searched for in the analysis after making the simple calculations in the SPSS engine.

APPENDIX 7: VALIDITY TEST EXPLAINED

The Structural Equation Model (SEM) that is implicit when you run a Cronbach's alpha assumes the measurement error is entirely random error; in other words, it assumes the items are all perfectly valid measures that are merely unreliable to some degree. Their failure to be perfectly correlated with each other is assumed to be entirely due to their unreliability, and not at all due to any of them being invalid (i.e., not due to them being, even in part, measures of something else). Under that assumption, alpha gives you a lower-bound estimate of the reliability of an additive scale made up of all those items. It is true that alpha is bigger if there are more items in the scale (because the random error has more ways to cancel out when more items are summed). Importantly, alpha is also bigger if the items are more strongly intercorrelated (because then the items themselves are presumably more reliable, with less random error).

Alternatively, one might assume that the items are less than perfectly correlated, not because they have random error, but because some of them are at least partially driven by something other than the theoretical construct you are trying to measure. In that sense, the intercorrelations of the items shed light on their convergent validity. If those intercorrelations are high, the items are mostly measuring the same underlying construct -- in other words, the items are highly valid.

So, for two scales of the same length, the one with the higher alpha is either more reliable (if you assume the items are all perfectly valid), or it is more valid (if you assume the items are all perfectly reliable).

As others in this thread have noted, you can approach these issues most systematically through SEM, such as confirmatory factor analysis. SEM requires that you make your assumptions explicit (e.g., are measurement errors random, or correlated), can usually give you estimates of the reliabilities of the individual items, will estimate effects involving other constructs directly without the need to form additive scales explicitly, and will give you goodness-of-fit measures to help you assess whether the assumptions specified in your model are consistent with the data.

In summary, validity would also be done differently as follows

- Check the factor structure of the test to evaluate whether items load most on the theorised scales. You could start with exploratory factor analysis and then later on build up to confirmatory factor analysis.
- Assess the reliability of the test given that reliability is necessary but not sufficient for validity. I.e., measure internal consistency reliability and test-retest reliability.
- Correlate your scales with a wide range of other variables.
    - Do your measures correlate with other existing measures of the same construct?
    - Do your measures not correlate or correlate to a lesser extent with things that theoretically should not correlate with the variable?
    - Do your measures predict theoretically relevant and important variables?
    - Do your measures correlate with alternative ways of measuring the variable (e.g., other report, behavioural measures, etc.)?

- Assess whether experts in the domain consider the items to accurately and adequately reflect the domain. The experts in this case are supervisors and other university dons.