National Taxpayers Association
pesa zetu, haki yetu

TOBACCO TAXATION

AND ITS IMPLICATIONS ON UNIVERSAL HEALTH COVERAGE (UHC) FINANCING IN KENYA

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ABBREVIATIONS AND ACRONYMS

ACT	Access to COVID-19 Tools
ARIMA	Auto-Regressive Integrated Moving Average
BAT	British American Tobacco
BROP	Budget Review Outlook Paper
CDC	Centers for Disease Control and Prevention
CPI	Consumer Price Index
FCTC	Framework Convention on Tobacco Control
GDP	Gross Domestic Product
GGHE	General Government Health Expenditures
GGHE D	Domestic General Government Health Expenditure
GoK	Government of Kenya
ICT	Information Communication Technology
IMF	International Monetary Fund
KDHS	Kenya Demographic and Health Survey
Ksh	Kenya Shilling
KIHBS	Kenya Integrated Household Budget Survey
KNBS	Kenya National Bureau of Statistics
NHIF	National Hospital Insurance Fund
NGOs	Non-Governmental Organizations
NHSSP	National Health Sector Strategic Plan
NCDs	Non-Communicable Diseases
NCPD	National Council for Population and Development
NTA	National Taxpayers Association
PAYE	Pay as You Earn
TaxSiM	Tax Simulation Model
UHC	Universal Health Coverage
WEO	World Economic Outlook
WHO	World Health Organization
VAT	Value Added Tax

FOREWORD

This report presents the findings and analysis of tobacco taxation on tobacco use, public revenue, and its implications on health financing in Kenya. It also provides policy recommendations to the government and informs advocacy for tobacco taxation for health financing. In addition, the study examined the government spending on tobacco prevention and control to establish whether it meets the Centre for Disease Control and Prevention (CDC) recommended budget levels. The CDC recommends allocating 5 percent of the total annual tobacco control program funds to administration, management of infrastructure development, and maintenance activities (CDC, 2014). The study generates evidence in support of Article 6 of the World Health Organization (WHO) Framework Convention for Tobacco Control (FCTC) which recommends the use of tobacco excise tax increases to achieve the public health goal of reducing the death and diseases caused by tobacco use.

Under the WHO FCTC, Kenya is obligated to protect present and future generations from the devastating health, social, environmental, and economic consequences of tobacco consumption and exposure to tobacco smoke. Significant efforts have been made by Kenya to increase tobacco taxes, however, the prevailing rates which account for about 35.6 percent share of the retail selling price of cigarettes, still fall below the recommended WHO minimum of 70 percent. In relation to health sector financing, the government of Kenya signed the Abuja Declaration in 2001 and committed to allocate 15 percent annual budget allocation to the health sector. Currently, the average percentage of the annual budget allocation is at an average of 7 percent which falls short of the Abuja Declaration. The Government is also committed to attaining Universal Health Coverage (UHC) by 2022 and this is supported by the commitment expressed in the Big 4 agenda. It does however call for consistent public financing of the health sector of above 5 percent of GDP. There are still high levels of out-of-pocket payments which spread the burden of health expenditures to households. Insufficient links between health promotive and preventive measures such as tobacco control, health systems, and implications on financing still affects access to healthcare services in Kenya.

It is in view of the above that the National Taxpayers Association undertook this study. The study reviewed selected relevant existing documents on tobacco taxation, consumption, health budgets, and health policies in Kenya. The study also examined tobacco taxation and consumption from a theoretical and empirical perspective. The report contributes to reforming health policies, health financing, and tobacco control by the relevant government Ministries, Counties, Departments, and Agencies (MCDAs). Overall, the study provides policy recommendations to the government and informs advocacy for tobacco taxation for health financing.

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EXECUTIVE SUMMARY

The Government with support from stakeholders has implemented various plans and programmes to provide affordable and accessible healthcare services to all citizens. However, the country still faces challenges such as the emerging cost burden of noncommunicable diseases, County overreliance on government equitable share funding, low revenue generation, limited National Hospital Insurance Fund (NHIF) coverage, unsustainable donor aid, and erratic private sector health initiatives among others. The Current Health Expenditure (CHE) as a percentage of GDP was estimated at 4.8 percent in 2017 with a slight increase in 2018 to 5.1 percent. In addition, the government's health sector allocation, at an average of 7 percent, falls short of the Abuja Declaration's 15 percent annual budget allocation target for the health sector. Further, the high levels of out-of-pocket payments spread the burden of health expenditures to households. Insufficient links between health promotive and preventive measures such as tobacco control, health systems, and implications on financing still affects access to healthcare services. This has had implications on health sector outcomes including during the COVID-19 period. The situation is made worse by the implications of preventable measures such as tobacco use control. Hence tobacco taxation is used as a measure towards controlling tobacco use.

Tobacco use has been linked to a wide range of negative health and economic consequences across countries, thwarting global development benefits in terms of people's health and countries' economic prosperity. Therefore, countries have adopted tobacco taxation as a measure to control its use and effects. The broad objectives of tobacco taxation from a public health perspective are to: reduce tobacco consumption and to prevent new entrants from engaging in cigarette smoking. According to statistics for Kenya, cigarette smoking was among the top causes of preventable mortality in 2021, accounting for more than 8 million deaths per year, exceeding the number of deaths caused by HIV/AIDS, Tuberculosis and Malaria combined during the same period. Further, tobacco users have a three-fold increased chance of death compared to non-smokers, and their life expectancy is reduced by at least a decade. In addition, tobacco use, and secondhand exposure are linked to non-communicable diseases such as lung cancer, heart disease, stroke and respiratory diseases as well as disability and mortality. The revenue generation incentive ought to be a secondary objective and WHO recommends it to be tied to earmarking tobacco-related control measures. Therefore, the current study sought to examine the implications of tobacco taxation on tobacco use, public revenue and implications on health financing.

Methodology

The study applied a simulation approach using the WHO Tobacco Tax Simulation Model (TaXSiM). TaxSiM is used widely across the globe to examine the effects of cigarette tax policy changes on cigarette consumption and excise tax revenue. Simulations are the standard approaches available to answer "what if" questions regarding changes in the tax rate or the tax structure. The tax rate and tax structure for the year 2019 was used as the benchmark over which changes were assessed. The tax structure that prevailed then was a tiered tax structure, where cigarettes with filters were taxed at a rate of Ksh. 2,630 and those without filters taxed at Ksh.1,895. Different scenarios were simulated and results presented in the respective sections.

i) Review of tobacco tax structure and tax system in Kenya

The government of Kenya overtime has tried to regulate the adverse health and economic effects of tobacco use by introducing several reforms in the tax structure and systems in the last 3 decades. Before, 1993, Kenya had imposed 130 percent ad valorem excise tax on the ex-factory price of tobacco products. A new tiered specific tax regime based on banded retail selling price (RSP) was introduced in 1993 and used until 2007 with few minor adjustments in the tax rate in certain bands. Several tiered excise tax systems were experimented by government between 2007 and 2010. The latest tax structure was introduced in 2018; a two-tier tax structure which sought to cushion the local cigarette manufacturers from adverse financial effects due to loss in the market. Enforcement of the recent changes are also vulnerable to tobacco industry interference.

Despite these reforms, the death rate is still on an increasing trend in the country, more than 8100 people die every year due to tobacco-caused related diseases as of 2016 relative to 6000 people in 2014. Further, there are emerging loopholes with the new system whereby the system has created an instance where the price increase of cigarettes in absolute terms does not necessarily lead to low tobacco use given the flexibility in the two tier system. This is because of the flexibility in the market which has allowed prices to increase more than taxes hence defeating the public health objective of reducing tobacco sales while increasing revenue.

Simulation Findings Summary

Benchmark scenario: In the baseline scenario (i.e. 2019) the excise tax was Ksh 1,895 for cigarettes without filters and Ksh. 2,630 for cigarettes with filters. The average retail price of the most common brand was Ksh. 250 per pack. Cigarette consumption is estimated at 2.445 million packs. Cigarette Excise revenue was Ksh. 12.081 billion from the simulation baseline (and was comparable to the Ksh. 12.236 billion reported by the Kenya Revenue Authority. Excise tax was 35.6 percent share of the retail price of cigarettes against a WHO recommended minimum benchmark of 70 percent.

ii) The effect of an increase in tobacco excise tax on demand for tobacco products

Scenario 1: Introducing a uniform tax rate of Ksh. 2,446 per thousand cigarettes or Ksh. 48.9 per pack: If the government introduces a uniform specific tax of approximately Ksh. 50 per pack (or US$0.50 per pack), the retail price of cigarettes shall only increase for the economy brand and decline for the middle and premium brands. The tax share in the retail price will remain about the same (at 35.5 percent). Sales volume (consumption) will reduce by 0.7 percent (or by 18.3 million packs). The smoking prevalence will move from 8.3 percent to 8.2 percent and the number of smokers will reduce only slightly (by 10,874). These results are expected since the uniform tax of Ksh. 2,446 increased the tax burden for the poorest consumers reduced the burden for the premium segment of smokers.

iii) The effect of an increase in tobacco excise tax on tax revenue

Scenario 1: Introducing a uniform tax rate of Ksh. 2,446 per thousand cigarettes or Ksh. 48.9 per pack: If the government introduces a uniform specific tax of approximately Ksh. 50 per pack (or US$0.50 per pack), Excise tax revenue is expected to decrease by 0.8 percent (or by 2 million packs). The simulations indicated that for the excise revenue to increase from the base scenario of the tiered tax, the uniform specific tax rate must exceed about Ksh. 2,470 per 1,000 cigarettes.

iv) Implications of tobacco taxation on health financing.

In as much as Kenya has a comprehensive Tobacco Control Act (2007) and Tobacco Control Regulations (2014), implementation of tobacco control activities has been difficult. The Tobacco Control Board and Division of non-communicable diseases (NCD) have consistently been underfunded, hence jeopardizing efforts to effectively enforce and administer Tobacco Control legislations. The tobacco control budget comes from NCDs budget line, but the funding is insufficient to deal with the increasing demand generated by the Tobacco Control Act. Kenya has undertaken strenuous efforts to limit tobacco usage and address its harmful implications, including tobacco related diseases. Kenya took part in the WHO Framework Convention on Tobacco Control (WHO FCTC) negotiations and ratified it in 2004. In 2007, a comprehensive Tobacco Control Act was drafted and implemented, and a tobacco control board was established to advise the Minister of Health responsible for public health on tobacco control.

1. President Uhuru Kenyatta's development blueprint committed to execute before his exit in 2022, The Big 4 Agenda, comprises of Food Security; Affordable Housing; Manufacturing and Affordable Healthcare. The projects directly relate to Kenya's Vision 2030. The agenda seeks to ensure an ordinary Kenyan is employed or has a reliable source of livelihood, owns a home, has enough food and is able to access universal health care.
2. Controller of Budget - Annual National Government Budget Implementation Review Report FY 2019/20

v) Policy recommendations to the government on tobacco taxation for health financing.

Overall, the study provides policy recommendations to the government and informs advocacy for tobacco taxation for health financing.

(i) There is a need for the government to ensure full compliance with the WHO FCTC agreements. This includes the following two recommendations: First, there is need for reform in the current tax tiered system by reducing the price gap among the brands. Secondly, there is a need for more reliance on specific tobacco excises as the share of excise taxes in retail prices' increases. There is need to ensure maximum impact of tobacco taxes on public health by reducing the gap in prices between premium and low-priced alternatives and limiting opportunities for users to switch down in response to taxation.

(ii) From the simulation results, it is evident that the taxes on tobacco in Kenya are much lower than the optimum level possible. An increase in tobacco taxes should also reduce tobacco use as increased taxes are known to result in decreased tobacco use.

(iii) Different scenarios can be adopted to enhance revenues generation.

(iv) In order to sufficiently respond to the interrelationship between NCDs and financing systems for UHC, it would be important to reorient the health system for chronic care. The implementation of the UHC agenda in Kenya can assist the country in reorienting and strengthening the country's health system to respond to chronic conditions such as NCDs and control of tobacco use.

(v) The Country will need to operationalize solatium compensation contribution (payment of 2% of tobacco companies' profits) to be channeled towards health care systems supporting management of non-communicable diseases.

(vi) Finally, an increase in tobacco taxes should be justified and that the money should be used to pay for tobacco induced healthcare expenditures for the poor and for tobacco control efforts to prevent tobacco related diseases and lower the out-of-pocket healthcosts.

1. Since 2014, Kenya has been ranked as a lower middle income country because its per capita GDP crossed a World Bank threshold.
2. Tobacco use remains the leading cause of preventable death globally, killing 8 million people every year and contributing significantly to the incidence of non-com municable diseases. Approximately 80 percent of deaths attributable to tobacco use occurred in low- and middle-income countries in 2011. In recognition of the global threat posed by tobacco use, the global community under the auspices of WHO had established the Framework Convention on Tobacco Control (FCTC) in 2003. The WHO FCTC provided countries with evidence-based guidelines, international accountability, and technical assistance for tobacco control implementation.

1. Introduction

Health constitutes of emotional, physical, and psychological well-being of a country's population and is critical for long-term economic growth and sustained development. However, countries and households are faced with several challenges as they strive to access healthcare services, including promotive and preventive measures such as tobacco control. Other challenges include the emergence of non-communicable diseases, low investment in health support systems (such as access to clean water, sanitation, and nutrition), financial constraints, poverty, and the continued rise in healthcare costs.

The Kenyan government has implemented various health sector strategic plans since independence, notably the National Health Sector Strategic Plan II (NHSSP II) 2005/06-2009/10 and Kenya's Health Policy 2014-2030, intended to improve healthcare provision through regulation and financing. The plan outlined the health sector's goals, which include increasing equitable access to health care, enhancing the sector's finance, and improving the efficiency, affordability, and effectiveness of service delivery. This is in acknowledgement of the importance of health not only in the creation of much-needed human capital but also in the role it plays in economic growth and development.

Kenya enacted a new constitution in 2010 and adopted a devolved system of government, introducing 47 county governments. Health services was one of the devolved functions from National government to County governments. Since then, health policies and strategies developed thereafter align with the devolution goals. The current policy is the Kenya Health Policy 2014-2030 (GoK, 2014) and Kenya Health Strategic Plan (2018-2023), which considers devolution objectives, such as health protection and promotion for all Kenyans; improving the availability of essential health services and specialized medical services for the population. It delineates the roles of the two levels of government (national and county) in the provision of health care services. The national government is primarily responsible for policy formulation, technical support provision, monitoring the quality of services, formulating guidelines for health services; and conducting research on health services management and administration; national referral hospitals and laboratories, national health service planning and budgeting; and health information communication technology (ICT). The function of county governments is to coordinate and manage healthcare delivery services, with primary health care promotion, public health and sanitation, ambulance services, disease surveillance, and response among others (GoK, 2014; Byl, Punia & Owino, 2013).

However, low health sector outcomes and COVID-19 implications present a challenge to sustainable funding for present health-care plans. Low revenue generated through previously the cost-sharing policy, the limited coverage of National Hospital Insurance Fund (NHIF) benefits, unsustainable donor aid, and limited private sector initiatives have implications on health provision. The Government's goal of attaining Universal Health Coverage (UHC) by 2022 is supported by the government commitment expressed in the Big 4 agenda. It does however call for consistent public financing of the health sector of above 5 percent of GDP, as recommended by McIntyre et al (2017). The Current Health Expenditure (CHE) as a percentage of GDP has been declining since 2010 from 6.1 percent to 4.8 percent in 2017 and a slight increase in 2018 to 5.1 percent (World Bank Database). This can be leveraged to scale up prepayment financing while reducing reliance on out-of-pocket payments. Furthermore, the government's health sector allocation, at an average of 7 percent, falls short of the Abuja Declaration's 15 percent yearly budget allocation for health sector commitment. Aside from the total budgetary allocation levels, more than half (63.2 percent in FY 2019/20) of allocated health sector funds is spent on recurring expenditures, the majority of which is spent on employee emoluments. Poor quality of services, frequent shortages of essential commodities (e.g. drugs) are all consequences of the expenditure trends. As indicated by the high levels of out-of-pocket payments, this transfers the burden of health expenditures to households. For example, households contributed 51 percent of the total health financing in FY 2017 /18, with the government (including parastatals and local councils) accounting for about 29.6 percent, and donors, private companies, and NGOs contributing 16.3 percent, 2.3 percent, and 0.6 percent, respectively.

Tobacco use has been linked to a wide range of negative health and economic consequences across countries, thwarting global development benefits in terms of people's health and countries' economic prosperity. Cigarette smoking was among the top causes of preventable mortality in 2021, accounting for more than 8 million deaths per year World over, exceeding the number of deaths caused by HIV/AIDS, Tuberculosis, and Malaria combined during the same period (WHO, 2021). According to studies, tobacco users have a three-fold increased chance of death compared to non-smokers, and their life expectancy is reduced by at least a decade (Jha, 2020). Furthermore, tobacco use and secondhand exposure are linked to non-communicable diseases such as lung cancer, heart disease, stroke, and respiratory diseases as well as disability and mortality. Tobacco usage has also been linked to an increased risk of communicable illness and death (Bonnie, Stratton & Kwan, 2015). Increased rates of stillbirth, low birth weight, congenital malformations, sudden death syndrome in infancy, disability from respiratory diseases in childhood and adolescence and young adulthood, and increased rates of cardiovascular death in relatively young middle-aged adults are just a few examples (Bonnie, et al. 2015).

Relative to other countries, Kenya is one of the highest consumers of tobacco in Sub-Saharan Africa (SSA) with an estimated prevalence rate of 13.5 percent in 2010 and projected 11.1 percent in 2025 relative to its neighboring countries such as Ethiopia (4.3 percent), Uganda (6.2 percent), Ghana (8 percent) and South Africa (6.5 percent) in 2025 (WHO 2015). In Kenya, the smoking prevalence rate in 2014 was 15.1 percent among men and 0.8 percent among women, with the national average of 7.8 percent in a population of 42.927 million then (Global Adult Tobacco Survey 2014). The daily cigarette smokers then constituted 11.6 percent being men and 0.6 percent being women. Concerning economic dimensions, the total market value of cigarette sales in Kenya in 2013 was Ksh. 34 billion for the sale of 4,403 million sticks (Euromonitor, 2014). This implied that the number of cigarettes smoked per day per consumer was 9 sticks with a daily expenditure of Ksh. 48 per day which translates to Ksh.17,477 annual expenditure per smoker. Considering the per capita GDP for 2014 of Ksh. 124,468, this cigarette expenditure represents about 14 percent of per capita GDP for a smoker. This shows the opportunity cost of consuming tobacco over other alternative individual expenditures.

To this effect, countries across the globe have implemented interventions to address the adverse effect of tobacco use not only on the health outcomes of the consumers but also associated economic effects (WHO, 2015). Further, different bodies across the globe have suggested a number of interventions, with the broad one being the World Health Organization (WHO) Framework Convention on Tobacco Control (FCTC) introduced in 2005. The Framework and its protocols outline the interventions required to address the socio-economic, health, and environmental consequences of tobacco use and exposure to the users. It is on this framework that countries have based their interventions of continuously reducing prevalence of tobacco use and exposure of tobacco smoke.

Overall taxation, social health insurance, tobacco taxation, private health insurance and out of pocket payments are the conventional healthcare financing strategies in many countries (Yu, Whynes and Sach, 2008). The current mix of health financing mechanisms and sources differ by country and region. Some of the factors that may contribute to these differences include lower middle-income countries' limited taxation capacity, considering their relatively small economies and high poverty levels; and widespread tax evasion by the rich and middle classes in lower middle-income countries , making resource pooling difficult (World Bank, 2004). While the potential benefits of tobacco taxation are obvious, there are several concerns that must be addressed. These include the detrimental effect of tobacco on the health of users, those exposed to cigarette smoke, the associated financial effect on healthcare cost and effect of tobacco use on other activities such as food and education among others. Additionally, access to healthcare for the poor is often constrained by low quality care, high transportation costs, and long waiting hours among others. This necessitates reforms, particularly financial reforms that will benefit the poor in a variety of ways. Tobacco taxation has been proven as the most effective and cost-effective measure of controlling consumption of tobacco globally (WHO, 2021). Increasing tobacco tax benefits both the consumer in terms of improving their health by discouraging consumption while boosting revenue generation to the government through taxes imposed on sales and imports of the products.

The globally recommended best practice in tobacco taxation is the WHO FCTC recommendations, which proposes the uniform excise tax as the most effective type of tax to achieve public health goals and sets a threshold of at least 70 percent of retail price of tobacco products. The intention of this is to ensure that excise tax is able to reduce affordability of tobacco products and reduce consumption. In addition, WHO recommends that governments should use a portion of revenues collected from tobacco taxes to support tobacco control and other health programs in a country in order to reduce the burden associated with the consumption of tobacco products and other harmful products. Regardless of this, the control of tobacco use in Kenya is still in tussle regarding the optimal tax structure to adopt for cigarettes that will not impact adversely on markets and tax revenues as well as promoting health objectives.

Over time Kenya has been restructuring the cigarette tax structure and system in a bid to simplify the system, making it effective and efficient in taming consumption of tobacco products while raising tobacco tax revenue (Nargis, Stoklosa, Drope, Ikamari, Rahedi Ongango, Fong, & Chaloupka, 2015; NTA, 2019). The excise tax system for tobacco products in Kenya historically has been complex. Before, 1993, Kenya had imposed 130 percent ad valorem excise tax on the ex-factory price of tobacco products. A new tiered specific tax regime based on banded retail selling price (RSP) was introduced in 1993 and used until 2007 with few minor adjustments in the tax rate in certain bands (Nargis, et. al., 2015). Several tiered excise tax systems were experimented by the government between 2007 and 2010 (Finance Act, 2006, 2008, 2010, Republic of Kenya). The Finance Act 2010 revived the RSP structure and introduced a 16 percent VAT on the producer price and 30 percent import duty on the CIF (cost, insurance and freight) value of products imported outside the East African Community (EAC).

In providing reasons for the tax changes in 2015/16 financial year in which the government introduced a uniform tax, through the Excise Duty Bill of 2015, the budget speech noted that the reform was to "…deepen tax administration reforms and ease compliance" and also protect local consumers (Budget Speech 2015/16). Yet, in FY 2017/18, the two-tier tax structure was re-introduced ostensibly to "cushion the local cigarette manufacturers from the adverse financial effects due to loss in market…" and the tax measure was to "ensure equity and fairness in the tobacco industry and prevent job losses in the sector." The uniform tax was described as "inequitable" and one that "adversely affected demand for locally produced low value cigarettes" (Budget Speech 2017/18 and NTA, 2019). These recent changes may be suggestive of tobacco industry interference.

Despite the success recorded by the Excise Duty Act of 2015, of reducing the consumption of cigarettes by 17 percent and increasing the amount of revenue collected by approximately 3 billion (from 9 billion to 12 billion between 2016 and 2017), the government through the FY 2017/18 budget statement reverted back to a tiered system (International Institute for Legislative Affairs, 2019). The government introduced a two band tiered system. However, loopholes are still evident in the tiered tax structure as some manufacturers are reducing the RSP of their lead brands in order to qualify for a lower tax rate. This defeats the intention of the prevailing tobacco tax structure since the tiered tax structure induces smokers to switch to cheaper brands instead of quitting in the event of tax and price increase. Thus the complexity in the tax system in adopting tobacco taxation as a tool to achieve public health objectives and therefore necessitates continuous review and reforms.

The current cigarette tax structure (two-tiers of Kshs. 2,630 per mile for cigarettes with filters and Ksh. 1,893 per mille for plain cigarettes) is not in line with the recommended WHO thresholds since it falls below the threshold. This weakens the attainment of the public health objectives of reducing consumption of tobacco products since the current rate promotes affordability of tobacco products. Further, the two rates could possibly induce substitution from high to low-end brands and therefore not succeeding in reducing or preventing consumption of the products. On the government side, the lower rates lead to lower government revenues as other users switch to 'roll-your-own' tobacco products. Therefore, the question of why Kenya has not adhered to the WHO recommended threshold needs to be answered. This question has been addressed under the review of tobacco taxation in the country in this current study.

1. Domestic production declared as export never leave the country or is illegally imported to the destination countries.

Some of the challenges reported under the new tier tax structure include the flexibility in the market. For instance, there are cases where taxes increased between 2018 and 2020 but the share of tax as a percentage of the price went down. This is mainly due to the fact that, in absolute terms, the price increase was larger than the tax increase (particularly in the case of specific excise tax increases). For example, the specific excise tax increased from Ksh 2500 per 1000 cigarettes in 2018 to Ksh 3,157 per 1000 cigarettes in 2020 (a 26.3 percent increase), while the price of the most sold brand increased from Ksh 130 to Ksh 250 per pack (a 92 percent increase). In terms of tax share, the excise represented 38.5 percent of the price in 2018 and it went down to 25.3 percent of the price in 2020. This is because prices rose more than taxes (WHO, 2021). This is not consistent with the public health objective of reducing tobacco sales while increasing revenue.

Currently, National Taxpayers Association (NTA) is implementing a three-year tobacco taxation project with other implementing partners in Zambia, Nigeria, Ghana, Kenya and Democratic Republic of Congo. The project aims to; a) Make partners essential and trusted government resource on tobacco tax and tobacco economics (b) reduce tobacco affordability in Kenya (c) Build a supportive tax and economic justice community in Kenya (d) reduce the tobacco industry's influence in the development and implementation of tobacco tax policies. This study informs NTA's advocacy efforts in Kenya on issues such as tobacco control and health financing. The research also aids in the development of efforts aimed at mainstreaming tobacco control as a health issue in Kenya and Africa at large.

1.1 Purpose of the study

In as much as Kenya has a comprehensive Tobacco Control Act (2007) and Tobacco Control Regulations (2014), implementation of tobacco control activities has been difficult. The Tobacco Control Board and Division of non-communicable diseases NCDs are not adequately funded to effectively enforce and administer Tobacco Control legislations. The tobacco control budget comes from NCDs budget line, but the funding is insufficient to deal with the increasing demand generated by the Tobacco Control Act. Kenya has undertaken strenuous efforts to limit tobacco usage and address its harmful implications, including tobacco related diseases. Kenya took part in the WHO Framework Convention on Tobacco Control (WHO FCTC) negotiations and ratified it in 2004. In 2007, a comprehensive Tobacco Control Act was drafted and implemented, and a tobacco control board was established to advise the Minister of Health on public health and tobacco control.

The purpose of this study, therefore, was to examine the implications of tobacco taxation on tobacco use, public revenue and implications on health financing. The report contributes to reforming health policies, health financing, and tobacco control by the relevant government Ministries, Counties, Departments and Agencies (MCDAs). Overall, the study provides policy recommendations to the government and informs advocacy for tobacco taxation for health financing. As adopted by many studies, this paper considered cigarettes as the main tobacco product since it solely constitutes about 90 percent of the tobacco products in Kenya and in other countries (Kipchoge, 2021; WHO, 2021; NTA 2020). In addition, in comparison with other tobacco products, cigarettes generate the highest excise revenue.

1.2 Overall Objective

The study examines tobacco taxation and implications on health financing in Kenya. Specific objectives included to:

- Review tobacco tax structure and tax system in Kenya;
- Determine the effect of an increase in tobacco excise tax on demand for tobacco products;
- Determine the effect of an increase in tobacco excise tax on tax revenue; and
- Assess implications of tobacco taxation on health financing.

2. Related Literature

2.1 Tobacco tax structure and tax system in Kenya

2.1.1 Review of International Best Practices for Tobacco Control

Cigarette taxation has been proven as one of the most effective tobacco control measures used by governments across the globe to attain the public health objectives and raise government revenues (WHO, 2021). Countries and other sector players have introduced various tobacco demand reduction interventions, starting with the WHO Framework Convention on Tobacco Control (WHO FCTC) in June 2003. The WHO FCTC was the first treaty developed in response to the globalization of the tobacco epidemic under the auspices of WHO. The framework sought to reaffirm and support the right to the highest standard of health for all people while introducing a paradigm shift in regulatory strategy that asserts the importance of demand reduction strategies as well as supply issues on tobacco control. Under the demand reduction provisions, WHO recommends imposition of price and tax measures that seeks to reduce demand for tobacco and non-price measures such as protection from exposure to tobacco smoke, regulations of the contents of tobacco products and demand reduction measures relating to dependence and cessation among others (Article 6-14 of WHO FTCO). On the supply side, the framework covers the provisions restraining illicit trade in tobacco products, sales to and by minors, and provision of support for economically viable alternative activities (Article 15-17 of WHO FTCO).

The WHO has suggested some of the best practices for tobacco tax policy, emphasizing the public health impact of tobacco taxes while also recognizing the importance of the revenues generated by the taxes. These practices provide a roadmap on how countries should address the effects of tobacco products both in terms of human health and country's goals of revenue collection. A number of countries including Kenya are yet to comply with some of the recommendations. Some of the practices are discussed below.

The WHO FCTC recommends the use of tobacco excise tax increases to achieve the public health goal of reducing the death and diseases caused by tobacco use. This recommendation projects that in the long run, the continued increase in tobacco excise taxes coupled with implementation of other evidence-based tobacco control policies and programmes will lead to even larger reductions in tobacco use and its consequences. Kenya has embraced this recommendation since its introduction but still the goals have not been met exhaustively. This is evident by the high prevalence rate of 13.5 percent in 2010 and 11.1 percent estimated in 2025 relative to some countries in Sub-Saharan countries such as Ethiopia (4.3 percent), Uganda (6.2 percent), Ghana (8 percent) and South Africa (6.5 percent) in 2025 (WHO 2015). In addition, the death rate is still on an increasing trend in the country, more than 8100 people die every year due to tobacco-caused related diseases as of 2016 (Kenya Tobacco Atlas, 2016) relative to 6000 people in 2014 (KDHS, 2014). Even though fewer men and women (4.22 percent and 1.55 percent respectively) die from tobacco in Kenya than on average in medium-HDI countries, tobacco still kills about 120 men and 36 women every week. This call for action from policy makers and other responsible bodies (Kenya Tobacco Atlas, 2016) to curb tobacco use.

Further, WHO FCTC requires countries to set tobacco excise tax levels to a level that it accounts for at least 70 percent of the retail prices for tobacco products. According to WHO FCTC, raising tobacco taxes would result in significant price increases, inducing current users to quit, deter numerous youth from consuming tobacco products, while resulting in a significant reduction in death rates and diseases related to tobacco use (WHO 2010). However, Kenya is yet to align its tax levels with these recommendations. For instance, with the introduction of ad valorem tax in 2011 with a minimum specific floor raised the excise tax share to 35 percent and the total tax share to 43 percent. This tax share was below the recommended WHO tax share levels of 70 percent. This shows that there was a scope for increasing revenue by raising the tax to the recommended level (Nargis, et. al., 2015).

Historically, Kenya tobacco excise tax system has been termed as a complex structure (Kipchoge 2021; NTA, 2020; International Institute for Legislative Affairs, 2019). This contravenes the WHO FCTC recommendation which provides that the tax structure of a country should be simpler since a complex tax structure poses challenges of administering, creating more opportunities for tax avoidance and evasion, and are less effective in achieving public health and revenue goals. In addition, WHO FCTC recommended more reliance on specific tobacco excises as the share of excise taxes in retail price increases. This would ensure there is maximum impact of tobacco taxes on public health by reducing the gap in prices between premium and low-priced alternatives and limiting opportunities for users to switch down in response to tax increases. With time, the ad valorem rate may be reduced with greater increases in the specific tax so that the total tax increases as a share of retail price and the specific tax accounting for a greater share of the total excise tax. If this was adhered to fully in Kenya, between the 2018 and 2020, the case problem as discussed in the introduction where the cigarette prices rose more than the taxes would not have been experienced.

Other recommendations provided by WHO FCTC, although not yet implemented, include the need to regularly adjust specific tobacco taxes for inflation, continuous adjustment of tobacco taxes to reduce affordability of tobacco products, while at the same time generating higher revenues. Further, countries are required to include tobacco excise tax increase as part of a comprehensive strategy to reduce tobacco use and utilize the portion of tobacco tax revenues to support other tobacco control and/or health promotion efforts (WHO, 2011) and needs to be supported. These best practices among others aid governments in maximizing the impact of tobacco taxes in reducing tobacco use and its consequences, while enhancing revenue generation.

Besides the best practices provided by WHO FCTC, countries signed a treaty in 2012 informing of a protocol to eliminate illicit trade in tobacco products. The protocol is based on Article 15 of the WHO FCTC and seeks to address the growing illegal trade in tobacco products, often across borders (WHO, 2015). Further, illicit trade poses a serious threat to public health because it increases access to often cheaper tobacco products, hence fueling the tobacco epidemic and undermining tobacco control policies. It also contributes to significant losses in government revenues. Despite Kenya signing the treaty, it is surrounded by countries (e.g. Somalia, South Sudan) which have internal conflicts and are not in a position to pay much attention to regional and global collaborations to find solutions to illegal cross-border trade. Further, the existence of sea-port and transit routes for landlocked countries and lack of administrative capacity to address tobacco industry tactics aggravate the problem. These factors contribute to the challenges Kenya is facing in addressing illicit trade in tobacco, which is in form of undeclared imports, undeclared local production, counterfeit brands production, and diverted exports (Nargis, et. al, 2015).

2.1.2 Evolution of reforms on the Structure and Systems of Cigarette Taxes in Kenya

Overtime, tobacco tax structure and system in Kenya has been termed as a complex system by researchers and implementers and that has necessitated frequent continuous changes in the tax structure (Kipchoge 2021; NTA, 2020; International Institute for Legislative Affairs, 2019). The tobacco tax system in Kenya has transitioned severally over time from the specific taxes in 1986 to ad valorem taxes in 1992 (International Institute for Legislative Affairs, 2019). During this period, the ad valorem excise tax was at the rate of 130 percent of the ex-factory price of tobacco products. From 1993, a new tiered specific structure was introduced which was based on Retail Selling Price (RSP) with minor adjustments introduced in bands until 2007, while the rate on other manufactured tobacco products remained at 130 percent of the ex-factory price.

The government adopted various models of different excise tax systems between 2007 and 2011 resulting in a combination of three tobacco tax models - RSP model, product characteristics and packaging characteristics (Nargis, et. al, 2015). The Parliament in 2007 rejected the government's effort of amending the tax structure through the Finance Bill 2007, from RSP to one based entirely on packaging characteristics. In the subsequent year, the amendment succeeded which saw an introduction of a hybrid system based on both retail selling price (RSP) and packaging characteristics with latter being predominant (NTA, 2020).

Another amendment to tobacco structure was introduced in 2010 through the Finance Act by Parliament. The amendment resulted in reinstating the predominantly RSP structure (Nargis, et. al, 2015). The Finance Act 2010, additionally introduced a 30 percent import duty on the CIF (Cost, Insurance and Freight) value of the products imported outside EAC, and a 16 percent Value Added Taxes (VAT) on the producer price. The charge on all import declaration fees remained at 2.25 percent regardless of the origin. The excise duty on other manufactured tobacco products was charged at 130 percent of the ex-factory price (Nargis, et. al, 2015). The government attempted to simplify the cigarette four-tier tax structure in 2012 using the Finance Act 2012 by introducing a single tier. Under the regime, 35 percent of RSP or Ksh. 1,200 per mile was charged, whichever was higher (Kieyah, Shibia, & Gitonga, 2014).

The government continued with its series of amending the tax system by introducing the Excise Duty Bill of 2015 (Government of Kenya, 2015). The Act was repealed and replaced the Customs and Excise Act. The Bill introduced a uniform specific rate of Ksh. 2,500 per mile aimed at simplifying the tax structure and eliminated the ad valorem. Among the objectives of the bill was to deepen tax administration Reforms and ease compliance. In the two years that Excise Duty was implemented, achievements reported include a 17 percent decline in consumption of cigarettes and an increase of revenue by approximately 3 billion (International Institute for Legislative Affairs, 2019).

The most recent adjustments in tax structure was introduced through the budget statement for the financial year 2017/18, which saw the return of the tiered system. The government introduced two bands of Ksh.2,500 per mille for cigarettes with filters and Ksh 1,800 per mile for plain cigarettes (as of the 2020, the bands were Ksh 2,630 and Ksh. 1,893 respectively) (NTA, 2020). The reform however recorded a loss in government revenue due to introduction of non-government's directive that requires a portion of revenues collected from tobacco taxes be channeled to support tobacco control and other health programs in the country. Further, introduction of a new brand of filterless cigarettes increased the affordability of cigarettes due to the low prices imposed on the products (International Institute for Legislative Affairs, 2019).

Kenya, just like other countries, is expected to choose the specific tax structure and system that meets the public health goals, because each structure has specific strengths and weaknesses. For instance, choosing between specific and ad valorem excise tax is not easy, it requires review of history and estimation of impacts for both tax policies to guide in making informed decisions regarding the tax specific tax to impose. In some cases, the two have been applied jointly successfully (WHO. 2011). The two taxes differ in terms of administration, with specific taxes being easier to administer compared to ad valorem taxes, which are prone to undervaluation since the tax authority relies on declaration of price to determine the tax due, thus it requires a stronger tax administration system (NTA, 2020). However, ad valorem taxes are preferred in some circumstances where a country is prone to be affected by high inflation because of its ability to maintain revenue value in case of inflation spike given that the amount of tax increases with increases in prices.

The choice between a uniform and tiered system (differential rate) is still a debate that is yet to be concluded. Each tax system comes with its strengths and weaknesses. The uniform tax system is adopted by some countries because of its simplicity in administration while others still differentiate within cigarette brands by imposing different tax rates and levying different types of excise such as Kenya, Egypt and Russia (NTA, 2020). Even though most countries have adopted tiered systems, the common weakness noted with the system is that it provides incentives for price manipulations to the extent that manufacturers can alter their pricing or production behavior to avoid higher tax liabilities (WHO, 2011). To address the issue, some countries such as Egypt, Russia, Poland and Turkey, have reformed excises in a way that it reduces the price gap among brands (WHO, 2011). The decision for the choice of tax systems requires extensive review for the two systems to determine the specific system that suits a country. The current study will undertake a review of Kenya's tobacco taxation system and identify areas of intervention.

1. Smokeless tobacco products include dry snuff, moist snuff, plug/twist, loose-leaf chewing tobacco, snus, and dissolvable products.

2.2 Effect of Tobacco Excise Tax on Demand for Tobacco Products

In economic theory, adjustment (increasing or decreasing) of a commodity's price results in demand and consumption changes. Price elasticity captures the change in demand for a good arising from a change in its price. While tobacco product demand is not as elastic as demand for many other consumer goods, studies have consistently established that increases in tobacco product prices are followed by moderate drops in both the percentage of people who smoke and the amount or number of tobacco products demanded by smokers (WHO & NCI monograph, 2016; The WHO Tax handbook 2021). The extent to which tobacco product demand responds to price fluctuations is an empirical subject, that differs more by income groups (these could be countries or individuals within a country), control of illicit tobacco (trade), other existing non-price tobacco control policies and market structure (nature of competition in the tobacco industry within a country). However, there are instances where cigarette consumption is inelastic to the price changes. For instance, in a situation where the demand for cigarettes increases by a smaller percentage than the percentage change in average income. This is common in many low- and middle-income countries (WHO & NCI monograph, 2016).

A prominent method adopted by countries globally is the use of cigarette taxes as a control mechanism for tobacco usage and its repercussions. According to World Bank projections, a tax adjustment that raises tobacco real prices by 10 percent can result in an 8 percent drop in tobacco consumption, particularly in low- and middle-income countries (WHO & NCI monograph, 2016; The WHO Tax handbook 2021). Tobacco products that are heavily taxed may deter users from consuming them, resulting in some savings for the family or the consumers. Additionally, tobacco tax income can be used to offset national healthcare expenses associated with tobacco-related illnesses, as well as increase financial resources needed to implement comprehensive tobacco control initiatives.

There are two broad objectives of tobacco taxation from a public health perspective. First, is to reduce consumption of tobacco, either by reducing the number of current smokers or by reducing the amount of tobacco consumed by the remaining smokers. Second, is to prevent new entrants from taking up the habit, especially the youth. The revenue generation incentive ought to be a secondary objective and WHO recommends it to be tied to earmarking tobacco-related control measures. The motive of revenue generation should also be aligned with an incentive of increasing the number of price-sensitive consumers to tobacco price. This can be achieved by adopting WHO recommendations, which suggests that more reliance on specific tobacco excises as the share of excise taxes in RSP to ensure that there is maximum impact of tobacco taxes on public health. Since it reduces the gap in prices between premium and low priced alternatives and limits opportunities for users to switch down in response to tax increases. Governments should be cognizant that not all tax efforts succeed in lowering the number of smokers or the amount of tobacco consumed, therefore continuous review of tax structures and other control measures is encouraged. This is necessary in affirming that the increase in tobacco tax has a beneficial impact on users and increases the number of price-sensitive consumers.

Furthermore, price sensitivity regarding various income categories is critical in determining tobacco use. Different population groups respond to price fluctuations in different ways. According to several studies, higher prices reducing the prevalence of smoking among youths at a higher rate relative to the general population by boosting interest in quitting, quit attempts and successful cessation (IARC Working Group on the Effectiveness of Tax, Price Policies for Tobacco Control, & International Agency for Research on Cancer, 2012). Studies on the relative impacts of price on juvenile smoking intensity among youth have reached varying conclusions, but those that have used the largest panels of data have generally been able to identify some effect on both initiation and cessation (IARC Working Group, 2011; DeCicca, Kenkel, Mathios, Shin, & Lim, 2008; Tauras, & Chaloupka IV, 1999).

Additionally, a study in South Africa that looked at smoking trends in economically challenged townships found that when cigarette prices rise, users reduce the number of cigarettes they smoke daily (Boachie & Ross, 2020) but the impact can vary across different categories of users. The price elasticity of cigarette demand was estimated to be -0.295 for the total sample using pooled data on price and non-price variables using binomial regression. This means that a 10 percent rise in cigarette pricing results in a 2.95 percent decrease in cigarette usage among the smokers. Youths, on the other hand, were found to be price agnostic with a 10 percent rise in cigarette prices only resulting in a 5 percent reduction in consumption. The rise in illegal cigarettes and the availability of lower-cost brands was noted to have been blamed for reducing the impact of price on smoking prevalence and undermining tobacco control policies. Further, the degree of the price effect was found to differ among age groups, gender, and income levels, comparable to earlier studies (Boachie et al. 2020 and Gitonga, Vellios, & van Walbeek, 2021).

The implementation of a tax method to reduce tobacco usage has encountered several roadblocks. The most common is a situation in which consumers have begun to substitute with different products of cigarettes such as roll-your-own tobacco, utilizing tobacco products and leaves, in response to price increase in cigarettes due to tobacco product tax levies. In Australia, for example, the usage of roll-your-own tobacco has surged in recent years as a result of a significant increase in tobacco product taxes (Colonna, Maddox, Cohen, Marmor, Doery, Thurber, & Lovett, 2021). The rise in popularity of roll-your-own has gained traction in countries where tobacco levies have not kept pace with cigarette taxes (Bayly, Scollo, & Wakefield, 2019).

In addition, the tobacco industry's pricing techniques have hampered the success of this strategy. Despite continuous tax increases during the time, recent research in the United Kingdom revealed that the real price per pack of cheap cigarettes has not risen (Hiscock, Branston, McNeill, Hitchman, Partos, & Gilmore, 2020). According to the report, the average inflation-adjusted price of the cheapest cigarette packs in 2001/02 was roughly £4.75 and £4.68 in 2015 (Hiscock et al. 2020). These investigations revealed that this was accomplished by reducing pack sizes and selectively absorbing (under-shifting) taxation rather than passing it on to consumers. The study found that tax increases were absorbed predominantly by the sector across all price categories and premium brands were under shifted for a shorter period, before becoming over shifted over the tax year, i.e., their prices increased beyond the tax increases imposed. In the USA, Europe, and New Zealand, similar market trends have been seen (Ballester, Auchincloss, Robinson & Mayne, 2017; Filippidis, Laverty, Hone, Been & Millett, 2017; and Marsh, Cameron, Quigg, Hoek, Doscher, McGee & Sullivan, 2016). The current study shows the impact of tobacco taxation on tobacco use in Kenya by reviewing the previous regimes of tobacco tax structures and corresponding effect on tobacco use and revenues collected by the government .

2.3 Effect of Tobacco Excise Tax on Tax Revenue

Tobacco Taxation has the potential to mobilize revenue for the government. The WHO Framework Convention on Tobacco Control (FCTC) and Article 6 of the WHO FCTC Act guidelines recommend that countries set aside revenue to fund tobacco control and other health promotion activities (WHO, 2003). Further, Article 6 of the WHO FCTC Act calls for the parties to secure and provide financial support for implementation of various tobacco control programs and activities that meet the Convention objective. Tobacco excise taxes have also been identified as a source of funding for the Sustainable Development Goals (WHO, 2015).

Higher tobacco taxes have been found to reduce tobacco consumption and promote public health while also raising government income that may be used to fund priority expenditures and programs that benefit the entire population, including health (World Bank, 2018). To increase revenue, governments typically impose various taxes on tobacco products, including VAT, import and stamp fees, and sales tax. In Greece, for example, it was predicted that a hike in excise tax in 2011 generated an additional €558 million in new tax revenue over a two-year period, despite a 16 percent drop in consumption (Alpert, Vardavas, Chaloupka, Vozikis, Athanasakis, Kyriopoulos, & Connolly, 2014). A €2 increase of tax per pack, according to the report, generates an additional €1.2 billion in revenue while preventing about 192,000 premature deaths.

To raise money through tobacco taxation, countries have used a variety of tax arrangements. In South Africa, for example, cigarettes are subject to a specific excise tax and VAT set by the National Treasury and reviewed on a regular basis. Between 1993 and 2009, the country raised tobacco taxes (including excise and sales taxes) from 32 percent to 52 percent of the retail price, resulting in a 9 billion rand gain in government revenue (WHO, 2015). Additionally, consumption dropped by 30 percent. In Botswana, the tobacco levy earned USD 4.1 million between 2014 and 2015, which was allocated to anti-tobacco programs through a range of community and government projects (Fuchs, Marquez, Dutta & Gonzalez Icaza, 2019).

According to figures issued by British American Tobacco (BAT) Kenya, BAT Kenya has paid over KES 80 billion to KRA over the last five years through various taxes such as excise duty, VAT, Pay as You Earn (PAYE), and corporation tax (BAT Kenya, 2021). Kenya's government has been evaluating the tax system on tobacco use over time in order to increase revenue while also reducing usage. In June 2015, the government introduced a unified specific tax rate of KES 2500 per 1000 cigarettes or KES 50 per pack to simplify the tobacco excise tax system (Excise duty bill, 2015). This adjustment resulted in a higher excise charge for premium brands when compared to the previous arrangement. This change included a 1 percent increase in excise rates for premium brands like Dunhill and Embassy, a 37 percent increase for mid-price brands like Sportsman, Sweet Menthol, and Safari, and an 81 percent increase for economy brands like Rooster, Super Match, and Rocket compared to the prior system (Nargis, Stoklosa, Drope, Ikamari, Rahedi Ongango, Fong & Chaloupka, 2015).

The goal of reintroducing a tiered excise system through the amendment of the Excise Tax Bill in 2015, was to develop a tax structure that favored low-income smokers (progressive taxation). Nonetheless, the President advised that the standard specified excise amount of KES 2500 per 1000 cigarettes be reinstated. On the other hand, excise tax revenue on cigarettes increased from Ksh. 10.2 billion in 2013 to Ksh. 12.2 billion in 2019 (Economic Survey, 2020). In 2014 cigarette smoking was more prevalent among men (16 percent) compared to women (1 percent) (KDHS, 2014). Among the men who smoked cigarettes, 28 percent smoked more than 10 cigarettes in the past 24 hours; 18 percent smoked 1-2 cigarettes; 26 percent smoked 3-5 cigarettes and 14 percent smoked 6-9cigarettes in the past 24 hours. According to estimates, the new tax structure will lower cigarette consumption by 3.4 percent and adult smoking prevalence by 0.3 percent . The current study estimated the amount of revenue generated from the current tobacco tax structure.

2.4 Viability and opportunities of earmarking tobacco tax revenues for health financing

Earmarking is the process of taking a portion or all a tax group's total revenue and putting it aside for a certain expenditure purpose (Cashin, Sparkes, & Bloom, 2017). In practice, earmarking establishes a clear link between a funding source (income) and the specific purpose for which it is used (expenditure). According to the WHO, earmarking policies for health requires clear strategies on the specific amount of revenue that needs to be channeled to health or a specific health program, a clear mandate on the proportion of funds that must be spent on the specific target, and the specific benefit rationale, such as linking individuals with direct benefits from contributions (Cashin, et. al., 2017).

Furthermore, it has been established in South Africa that the illicit trade business exaggerates numbers compared to independent studies, generating a narrative that it is rising at an alarming rate or as a response to a recent tax rise (Eriksen et al. 2015; Blecher 2010). South Africa, like a few other African countries, has enacted tobacco and alcohol excise taxes. Since the early 1990s, this has resulted in large increases in tobacco and alcohol prices. Tobacco and alcohol sales volumes have decreased, while tax income has increased significantly (R 14.5 billion and R 31.5 billion, respectively) (Ozer, Bloom, Martinez Valle, Banzon, Mandeville, Paul, & Chhabra, 2020). In the budget, South Africa does not designate any tax revenue in accordance with broader fiscal policy processes (Blecher 2020).

Other countries, such as Uganda, have turned to legislation in order to increase tobacco-related revenue. Uganda passed the Tobacco Control Act of 2015, which made it easier to change the tax structure from a tiered

to a unified tax system and raise tobacco taxes (Nargis, Nyamurungi, Baine, & Kadobera, 2017). According to studies, the Act has resulted in a 33 percent decrease in per capita consumption and 18 percent reduction in smoking intensity (Ntale & Kasirye, 2018). This implies a reduction in affordability of tobacco products in Uganda, especially among the youth and the vulnerable groups.

2.5 Tobacco use and its implication for health financing

It has been established in the United States that total mortality among smokers, both male and female, is around three times higher than that of similar people who have never smoked (US Department of Health and Human Services, 2014). This amounts to around 480,000 deaths each year in the US, including over 41,000 deaths from secondhand smoke exposure, meaning at least 1,300 deaths every day. Men who smoke on the other hand are at a larger risk of dying than women who smoke according to the study. Men who smoke had a 17-fold increased chance of dying from bronchitis and emphysema, compared to 12 times for women as well as cancer of the trachea, lung, and bronchus (US Department of Health and Human Services, 2014).

The entire economic cost of smoking in the United States is more than USD 300 billion per year, with around USD 225 billion in direct medical care for adults and more than USD 156 billion in lost productivity owing to premature death and secondhand smoke exposure (Xu, Shrestha, Trivers, Neff, Armour, & King, 2021). Manufacturers and traders spend over USD 8.2 billion on advertising and promoting of cigarettes and smokeless tobacco combined, equating to approximately USD 22.5 million every day. Customers in the US receive a discount on around 74.7 percent of all cigarette marketing (almost USD 5.7 billion). These are discounts given to consumers in order to lower the cost of cigarettes.

About 11.76 percent of Ugandans aged between the ages of 15 and 49 use tobacco products (Global Tobacco Adult Survey (GATS), 2013). Non-Communicable Diseases (NCDs) accounted for 25 percent of all deaths (Mendis, Bettcher, & Branca, 2014). According to the estimates, cancer kills 127 people per 100,000, chronic respiratory diseases kill 159 people per 100,000 and cardiovascular diseases and diabetes kill 562 people per 100,000. The annual average medical cost of a current or former smoker suffering from tobacco-related diseases in Uganda, was estimated to be USD 1,422, which was 2.28 times higher than the annual average medical cost of a non-smoker, which is USD 622.8, implying a relative risk (RR) ratio of 2.28. The population attributable risk (PAR) was 0.94 percent, based on a population-level tobacco 11.76 percent (Global Adult Tobacco Survey, 2013). This means that tobacco usage was responsible for about 1 percent of the entire cost of tobacco-related illnesses in Uganda. The direct cost of treating tobacco-attributable illnesses in Uganda was estimated to be USD 41.56M.

In addition, the total health cost of smoking and its associated costs in Uganda was estimated at USD 126.48 million, including direct treatment expenses and indirect costs of lost income and productivity due to mortality and disability (Nargis, 2017). The entire health cost outpaced the market value of tobacco products, which was USD 81.22 million that accrues to tobacco farmers in Uganda. The fact that the expense of using tobacco in Uganda outweighs the benefits warrants government intervention in the country's tobacco control and prevention efforts. In 2013, the cost of tobacco usage was 0.5 percent of GDP, while the health care costs for treating tobacco-related diseases accounted for 2 percent of total national health spending. These resources must be redirected to more productive applications while benefiting both public health and the economy (Nargis, Nyamurungi, Baine, & Kadobera, 2017).

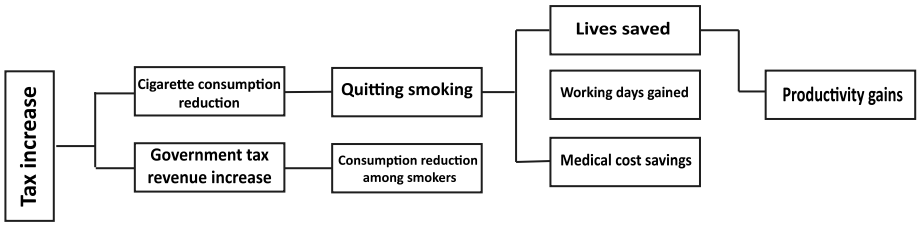
Medically, lung and vascular disorders including cancer are among the leading causes of premature death among smokers (Jha, Ramasundarahettige, Landsman, Rostron, Thun, Anderson, & Peto, 2013). The main cause of cancer has been identified as smokeless tobacco. Furthermore, smokers are at an increased risk of sudden death due to ventricular arrhythmias, a disease in which the heart does not operate properly (IARC Working Group on the Evaluation of Carcinogenic Risks to Humans, International Agency for Research on Cancer (IARC), & World Health Organization, 2007).

Therefore, the current study took the same approach to determine the implications of tobacco usage and cigarette taxes on healthcare financing in Kenya. In addition, the study examined the government spending on tobacco prevention and control to establish whether it meets the CDC recommended budget levels. The Centre for Disease Control and Prevention (CDC) recommends allocating 5 percent of the total annual tobacco control program funds to administration and management of infrastructure development and maintenance activities (CDC, 2014) . That is, 5 percent of the income generated from activities related to the sale and consumption of tobacco should be used to fund a tobacco prevention and control program. However, the 5 percent could be smaller for low- and medium-income countries like Kenya, considering that could be the only source of financing to the program. The economic cost of smoking in Kenya amounts to Ksh. 2,978 million shillings annually. This includes direct costs related to healthcare expenditures and indirect costs related to lost productivity due to early mortality and morbidity (Tobacco Atlas Kenya, 2020).

3. Methodology

To estimate the possible effect of increasing cigarette taxes on smoking prevalence, number of lives saved, and government tax revenue in Kenya, the study performed simulation analysis based on price elasticities estimated. With the different price elasticities, three scenarios of fluctuating the tax rate are provided below to show how the variables change with the change in tax rate. Figure 1 below, presents a conceptual framework that guides the study in the simulation analysis.

Figure 1: Conceptual framework of how tobacco tax reduces tobacco use, increase government revenue and boost health among the individuals



Further, the study used the WHO Tobacco Tax Simulation Model (TaXSiM) simulation approach to examine the effects of cigarette tax policy changes on cigarette consumption in Kenya. TaxSiM is used widely across the globe to examine the effects of cigarette tax policy changes on cigarette consumption and excise tax revenue. Simulations are the standard approaches available to answer "what if" questions regarding changes in the tax rate or the tax structure.

This method is based on the demand and supply theory. Hence the higher the price the lower the demand and the lower the price the higher the demand. The approach is also suitable primarily because of its relatively low data requirements and its ability to effectively provide feasible estimates of the quantities of interest. For modeling purposes, the study assumed that the final retail price (P_R) is made up of three main components: the producer price (P_P), the supply chain margin (R_M), and the tax (T). This can be presented in an equation as follows:

$$R_R = P_P + R_M + T$$

To estimate the possible total excise revenues, total sales, and total tax revenues, the study will estimate the following model.

$$ER=\sum n\ EXQ\_\theta, TQ=\sum\_(\theta=1)\hat{}n\ Q\_\theta, TR=\sum\_(\theta=1)\hat{}n\ TXQ\_\theta$$

Where, represent the total excise revenue, stands for the total quantity of cigarettes sold, is the total value per unit, and is the total tax revenue (excise tax, VAT, import duties, customs services charges).

Further, to estimate impact analysis of the tax policies, the TaXSiM allows for initial description of

the existing market and tax situation for cigarettes at a comprehensive level, by band and market segment. This creates a baseline against which the impact of differentiated taxation strategies on key market parameters (consumer prices, consumption volumes, and tax revenues) can be measured. Therefore, applying Kenyan context, TaXSiM was used to assess the effect of tax policy change under the current tax administration policy in Kenya. The tool allows for application of various benchmark scenarios. The tax rate and tax structure for the year 2019 is used as the benchmark over which changes are assessed (The Legal Notice No. 109 of 2019). The tax structure that prevailed for most of 2019 can be traced back to 2017 when cigarettes with filters (hinge lid and soft cap) were taxed at a rate of Ksh. 2,500 per thousand cigarettes (or 2.5 per cigarette). This rate was adjusted upward following the Legal Notice No. 164 of 2018 to Ksh. 2,630 in August 2018. On the other hand, the same Legal Notice adjusted excise rates for cigarettes without filters (plain cigarettes) from Ksh. 1,800 per thousand cigarettes in 2017 to Ksh. 1,895 in 2018. These 2018 rates were applicable until 1st July 2019 before Legal Notice No. 109 of 2019 came into effect.

Thereafter, the simulations performed estimated the effects of the taxes based on scenarios that relate to not only tax increases but also differing tax structures. Key variables encompass consumption, tax revenue, and smoking prevalence. The TaXSiM model made the following assumptions:

- Since total cigarettes sales were not readily available, customs and excise data was used in addition to data used by previous earlier studies. Given that some cigarettes consumed in Kenya are imported, customs and excise data on imports of the products was used as a good proxy for domestic sales, which also serves as the proxy for domestic consumption, assuming minimal re-exporting of the product.
- Price-elasticity: Those smokers of premium brands have a price-elasticity similar to that of smokers in high-income countries. In addition, the model assumed that individuals with higher income smoke premium brands.
- Tax pass-through: that tax increases are eventually completely reflected in the final price of the product, consumers' price (P_R).
- Trading-down by smokers: that as prices increase, some smokers will reduce their average daily intake of their favorite brand and others may cease the practice altogether. The study is also cognizant of the fact that some smokers may choose to trade-down to lower priced cigarettes, reflecting the cross-price elasticity of demand for products brands.
- Illicit trade and tax revenue: that although there is concern of heavier taxes prompting smuggling and illicit trade (and consequently, reduced tax revenues), the TaxSiM implicitly addresses the possibility.

TaXSiM Simulation scenarios

To conduct simulations, the data relating to the characteristics of the current tax system was entered into the model. The data included tax rates and base by types (excise, VAT, customs services charges etc.), estimates of price elasticity of demand for each brand segment, sales volumes, and final consumer prices for each product.

Then, the model estimated initial (baseline) values for a number of variables of interest, including average excise tax per unit, average price per unit, sale volumes (consumption), total tax revenues, and excise tax revenues. The effect of the type of excise taxes on cigarettes are analyzed by two broad simulation scenarios. The following simulation scenarios were adopted:

- The **benchmark scenario** is the tiered tax that prevailed for most of the year 2019, which was an excise tax of Ksh. 1,895 for cigarettes without filters and Ksh. 2,630 for cigarettes with filters.
- In **scenario 1**, the study assumed that the tax authority introduces a uniform specific tax of Ksh. 2,446 per 1,000 cigarettes (or Ksh. 48 per pack of cigarettes) rather than maintaining a specific tiered tax. The Ksh. 2,446 is a weighted average of the tiers.
- In **scenario 2**, the study assumed the tax authority introduces a uniform tax of Ksh. 3,500 per 1,000 cigarettes (or Ksh. 70 per pack of cigarettes) in place of the tiered tax. This rate is used because it has been recommended by tobacco control stakeholders (Ref). We also examine the effects of higher uniform rates. All the tax rates examined are within the recommended 70 percent share of excise tax on cigarettes' retail price.

Thereafter, the study applied changes to tax rates, base, or type, to predict how these changes affected the indicators provided above. The findings gave the predicted impact on total revenue, and excise revenues among other variables as discussed in the subsequent sections below. Table 1 presents the main data sources.

Table 1: Data sources

Objective	Variables	Data and information sources
1. Review of tobacco tax structure and tax system in Kenya	Tax structure and systems, specific versus ad valorem taxes; uniform versus tiered tax; affordability, regressivity, and equity	Several Finance Acts for Kenya, Budget Policy Statements, Excise Bill 2015, and previous studies e.g. Nargis N, Stoklosa M., Ikamari L., Ong`ang`o J. R., Fong G. T., Drope J., Kimosop V., and Chaloupka F. J. 2015) Cigarette Taxation in Kenya at the Crossroads: Evidence and Policy Implications; and WHO (2011). WHO Technical Manual on Tobacco Tax Administration

2. i)Determine the effect of an increase in tobacco excise tax on demand for tobacco products ii)Determine the effect of an increase in tobacco excise tax on tax revenue	Tax excise revenues, tobacco tax, Number/percent of people using tobacco (smoking), tobacco tax and price **Baseline information** (year 2019): Male and female population 15.4 and 15.7 million persons respectively, smoking prevalence 16.3 percent and 0.4 percent respectively, These include consumption volumes (tax paid sales), cigarette retail prices for premium, middle and economy brands are Ksh. 260, 190 and 130 respectively with estimated elasticity of 0.2, 0.4 and 0.6 respectively. Market share of 10 percent, 45 percent and 45 percent respectively. Tiered Excise tax is Ksh. 1,893 and Ksh. 2,630 for filtered and non-filtered cigarettes respectively, VAT rate of 16 percent, and import duty of 30 percent current (2019) cigarette excise tax revenue was Ksh 12.2 billion in 2019. Simulation scenarios included: 1. Comparing baseline with gradual increase in tiered versus uniform tax (idea is to compare tiered versus uniform taxes with respect to impacts on prices, consumption and revenues) 2. Comparing performance within a wide range of elasticity values (sensitivity analyses)	Data used in the WHO TaxSiM model included KDHS 2014; Economic Survey (various); NCPD; Relevant Legal Notices e.g. The Legal Notice No. 109 of 2019; Controller of budget reports - Budget Review & Outlook Paper (BROP); 2015 Kenya WHO STEPS, Kenya – country profile tobacco statistics[1], 2014 Kenya Tobacco survey; National treasury reports and MOH reports, World Health Organization[2], and World Bank[3], and KIHBS 2015/16

4. Tobacco taxation and its effects of consumption and government revenue

4.1 Effects of the type of Excises taxes on Tobacco Related Revenues

Tobacco related tax revenues have been fluctuating in Kenya. Between 2010 and 2017, excise revenues collected from sale of cigarettes in Kenya increased by 78.2 percent, from Ksh. 7.3 billion to Ksh. 13.05 billion (Figure 2). During this period, there were various changes in tax systems in Kenya, include the RSP structure in 2010, a single tier tax system in 2012, and the uniform specific tax rate introduced in the Excise Duty Bill 2015. Following the re-introduction of a tiered tax system in FY 2017/18, of two bands of Ksh.2,500 per mille for cigarettes with filters and Ksh 1,800 per mile for plain cigarettes and various changes in bands, cigarette-related revenues collected have since been declining at an annual average rate of 5.4 percent, from Ksh. 12.8 billion to Ksh. 11.5 billion in 2020. Relative to the contribution of excise revenues generated by the government from commodities and services, the proportion of cigarette contribution has been declining since 2013, from 30.8 percent to 11.2 percent in 2020 (Figure 2).

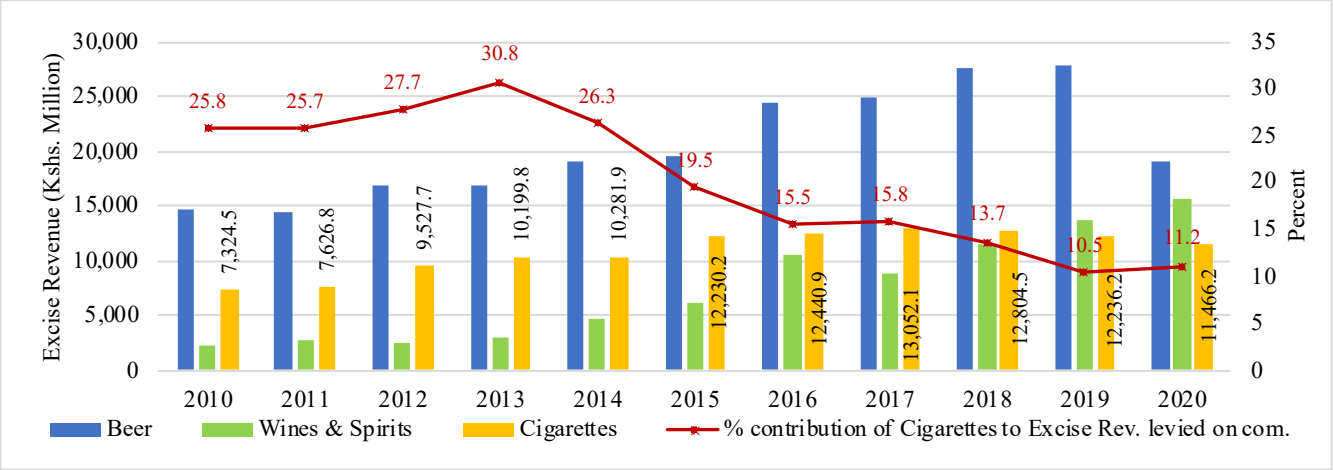
This implies that the excise revenues from other products such as Beer and Wines and Spirits experienced a relatively higher increase (or lower decline) in revenues than those generated from cigarettes.

1 https://tobaccotactics.org/wiki/kenya-country-profile/

2 https://www.who.int/teams/health-promotion/tobacco-control/who-report-on-the-global-tobacco-epidemic-2019

3 World development indicators. https://databank.worldbank.org/source/world-development-indicators. Accessed 20 July 2021.

Figure 2: Trend of Excise Revenue Levied on Cigarettes and other selected commodities and Services (Ksh. Million)



Source: KNBS Economic Survey, Various Issues.

4.2 Introducing a uniform tax rate (considering weighted average of the current tiers).

The study estimated the possible excise revenues using WHO Tax Simulation Model (TaXSiM) which factored in the total quantities of cigarettes sold, the price per unit of cigarettes and the taxes imposed on the product. The government collects revenue from the sale of cigarettes in the form of VAT, excise tax, import duties, and customs service charges. Previous studies have estimated the possible tobacco related revenues from the earlier tax systems in Kenya. The summary of their findings are presented in Annex Table 2. The most recent study (NTA, 2020) had used the current tax system of a two-tiered excise tax when the bands were Ksh. 2500 to per mille for cigarettes with filters, and Ksh. 1,895 per mille for plain cigarettes. The current study adopted the same approach and advanced the model using the latest band of the two-tiered excise tax system of Ksh. 2630 per mille for cigarettes with filters, and Ksh. 1,895 per mille for plain cigarettes. Further, the study projected the model to cover the next 3 years period (2022 -2024). In addition, the study estimated a scenario where a reduction in the gap between the bands would change the tax rate, consumption and revenues (Increasing the excise tax for plain cigarettes from the current Ksh. 1,895 to Ksh. 17,000 per 1,000 cigarettes).

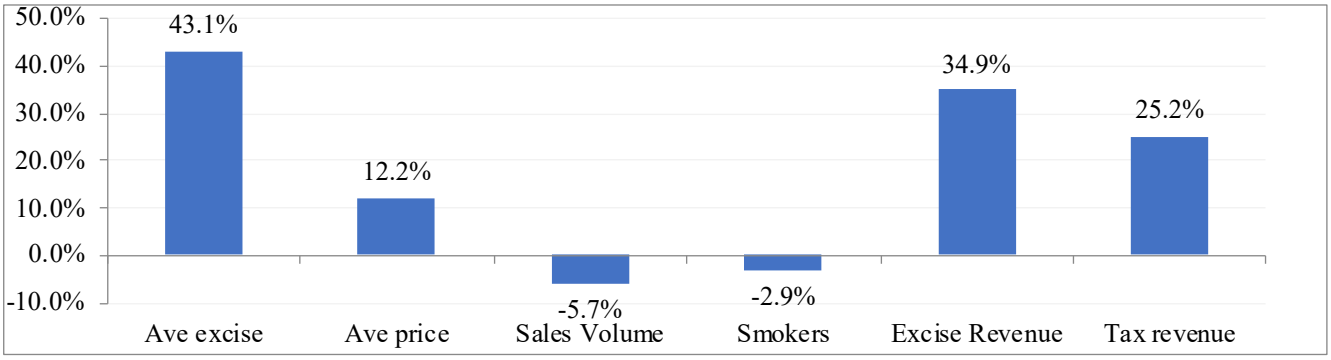
Benchmark scenario: In the **baseline scenario** (i.e. 2019) the excise tax was Ksh 1,895 for cigarettes without filters and Ksh. 2,630 for cigarettes with filters. The average retail price of the most common brand was Ksh. 250 per pack. Cigarette consumption is estimated at 2.445 million packs. Cigarette Excise revenue was Ksh. 12.081 billion from the simulation baseline (and was comparable to the Ksh. 12.236 billion reported by the Kenya Revenue Authority (see Economic Survey, 2020). Excise tax was 35.6 percent share of the retail selling price of cigarettes against a WHO recommended minimum benchmark of 70 percent.

Scenario 1: Introducing a uniform tax rate of Ksh. 2,446 per thousand cigarettes or Ksh. 48.9 per pack (taking the weighted average of the tiers), rather than maintaining a specific tiered tax. The weighted average was computed assuming the respective weights of cigarettes without filters and those with filters were 25 percent and 75 percent respectively. If the government introduces a uniform specific tax of approximately Ksh. 50 per pack (or US$0.50 per pack), the retail price of cigarettes shall only increase for the economy brand and decline for the middle and premium brands. The tax share in the retail price will remain about the same (at 35.5 percent). Sales volume (consumption) will reduce by 0.7 percent (or by 18.3 million packs). Excise tax revenue is expected to decrease by 0.8 percent (or by 2 million packs). The smoking prevalence will move from 8.3 percent to 8.2 percent and the number of smokers will reduce only slightly (by 10,874). These results are expected since the uniform tax of Ksh. 2,446 increased the tax burden for the poorest consumers and reduced the burden for the premium segment of smokers. The simulations indicated that for the excise revenue to increase from the base scenario of the tiered tax, the uniform specific tax rate must exceed about Ksh. 2,470 per 1,000 cigarettes.

4.3 Introducing a uniform tax rate (considering WHO recommended benchmark)

Scenario 2: Introducing a uniform tax of Ksh. 3,500 per thousand cigarettes or Ksh. 70 per cigarette pack and higher uniform taxes thereafter. The rationale of applying this higher tax is to move closer to the WHO recommended benchmark of a minimum of 70 percent share of excise tax on retail price. In this scenario, the average retail price of cigarettes is expected to increase by 12.2 percent. The excise tax share of the retail price is 43.1 percent. Sales volume is estimated to decrease by 5.7 percent (or by about 14.1 million packs). The smoking prevalence for the population reduces from 8.3 percent to 8.0 percent while the number of smokers reduces by 73,886 (or by 2.9 percent). Excise revenue is expected to increase by 34.9 percent (or by about Ksh 4.2 billion). The tax burden increases for all categories of smokers but increasingly so for the lower end of the market.

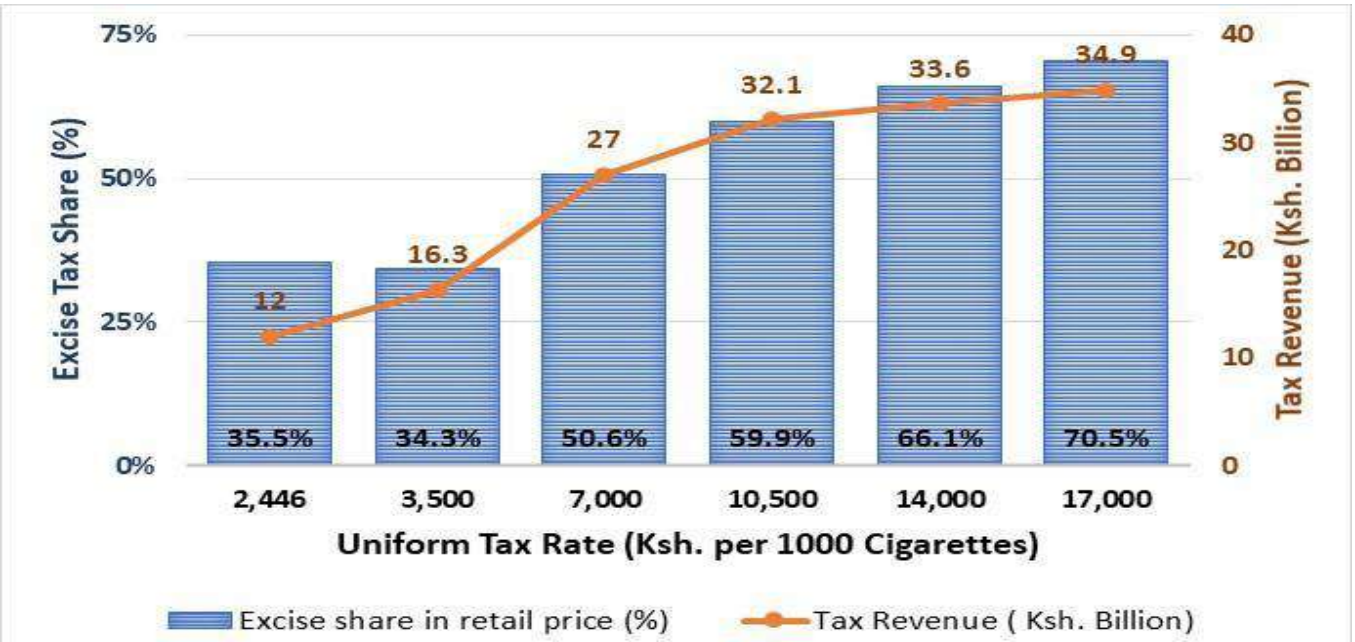
Figure 3: Effect of uniform tax rate on cigarette consumption and tax revenue



Source: Authors Computation from Simulation model

Figure 4 examines the effect of higher uniform taxes on: (i) the share of tax to the retail price of cigarettes; and (ii) impacts on excise revenue. Increasing the uniform tax from Ksh. 2,446 to Ksh. 14,000 per 1,000 cigarettes increases the share of tax unambiguously. The recommended minimum of 70 percent share of tax in retail price of cigarettes is achieved for a uniform tax rate just below Ksh. 14,000 per thousand (or Ksh.14 per cigarette) (Figure 4). This suggests that there is room to increase the excise tax on cigarettes and still accrue larger excise revenues.

Figure 4: Excise tax share and tax revenue associated with uniform tax rates on cigarettes



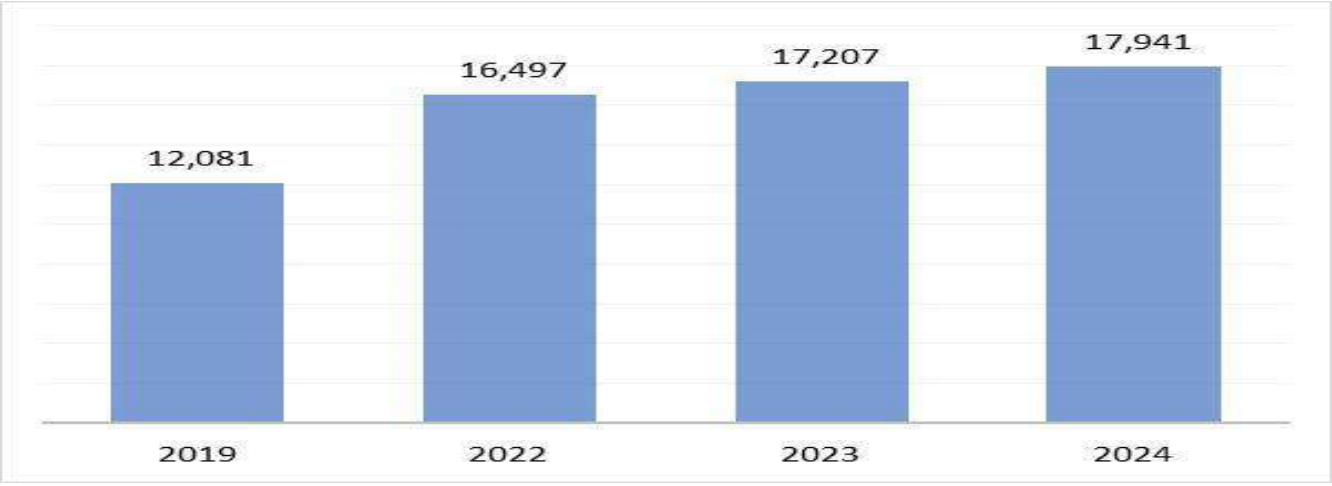
Source: Authors Computation from Simulation model. *Projections: Introducing a uniform tax of Ksh. 3,500 per thousand cigarettes or Ksh. 70 per cigarette pack and adjusting the rate to projected inflation levels and change in population*

4.4 Revenue projections for 2022, 2023 and 2024 (uniform tax)

We projected revenues for the years 2022, 2023 and 2024. The major assumptions were that the economy would bounce back following the dampening effects of COVID-19 on economic growth in 2020. The inflation rate was assumed to be about 5 percent for each of these years. This inflation rate was used to adjust the excise uniform rate for these consecutive years. The population was assumed to grow at about 2.7 percent. The actual population projections for men and women were picked from the projections by the National Population Council.

If a uniform tax structure is applied and the rate adjusted to the ruling inflation rate, the excise tax revenue on cigarettes is projected to increase to nearly Ksh. 18 billion in 2024 (figure 5).

Figure 5: Excise tax revenue projections associated with uniform tax rate of Ksh 3,500 in 2022 and adjusted to inflation 2023 and 2024



Source: Authors Computation from Simulation model

4.5 Effects of the tax structures on price of cigarettes

With the erratic changes in tax structures and systems related to tobacco in Kenya, different tax structures have resulted in different prices of cigarettes. The study estimated the effect of current tax structures and systems in Kenya using the Simulation model, and compared the results with changes in prices estimated by earlier studies under different tax structures. The retail price for cigarettes in Kenya is made up of three main components: the producer price, the supply chain margin and the tax. The current study considered the revised two-tiered excise tax system and established the following changes in prices across the tiers.

A switch from a tiered tax system to a uniform tax structure: If a uniform tax rate (weighted average of the current tiers) is considered **(Scenario 1),** a uniform tax rate of Ksh. 2,446 per thousand cigarettes or Ksh. 48.9 per pack, the retail price of cigarettes shall only increase for the economy brand and decline for the middle and premium brands. The tax share in the retail price will remain about the same (at 35.5 percent).

As indicated above, the smoking prevalence will move from 8.3 percent to 8.2 percent and the number of smokers will reduce only slightly (by 10,874). These results are expected since the uniform tax of Ksh. 2,446 increased the tax burden for the poorest consumers and reduced the burden for the premium segment of smokers. The simulations indicated that for the excise revenue to increase from the base scenario of the tiered tax, the uniform specific tax rate must exceed about Ksh. 2,470 per 1,000 cigarettes.

Tobacco products become more affordable if price increases do not keep pace with increases in per capita income and consumer purchasing power over time (WHO, 2017). According to WHO, affordability changes over shorter time periods give countries an indication of where tobacco taxes might need further attention, and illustrate the need for automatic adjustments in taxes to account for changes in national economies. Earlier studies have estimated the price of cigarettes based on the tax structures that existed then. Annex Table 3 gives a summary of the studies, the model adopted, the tax structure (excise tax) in place then, and the prices of cigarettes.

5. Tobacco Taxation Implication on Health Financing

5.1 Health Budgets

Health Sector Financing by source

The government of Kenya depends largely on the government's contributions to the sector and household payments for the healthcare services rendered to them (Table 2). In FY 2015/16, the contribution of households to the health sector in form of out of pocket expenditures were equal to the contributions from the national and county governments, each accounting 33 percent of the total health sector finances. This comes at the time the national health insurance fund (NHIF) coverage was only 18 percent of the total population (implying that about 39 million of Kenyans are contributing the monies directly) (Kazungu & Barasa, 2017). The high levels of out-of-pocket payments spreads the burden of health expenditures to households.

Table 2: Health Sector Financing in Kenya by institutions providing revenues

Institution	2009/10	percent share	2012/13	percent share	2015/16	percent share
Government	52.63	27	81.83	32	107.74	33
Corporation	22.13	11	26.40	10	38.54	12
Households	57.26	30	83.69	32	106.99	33
Donors	61.84	32	66.78	26	72.42	22

Source: Kenya National Health Accounts Report 2015/16 (Updated 2019).

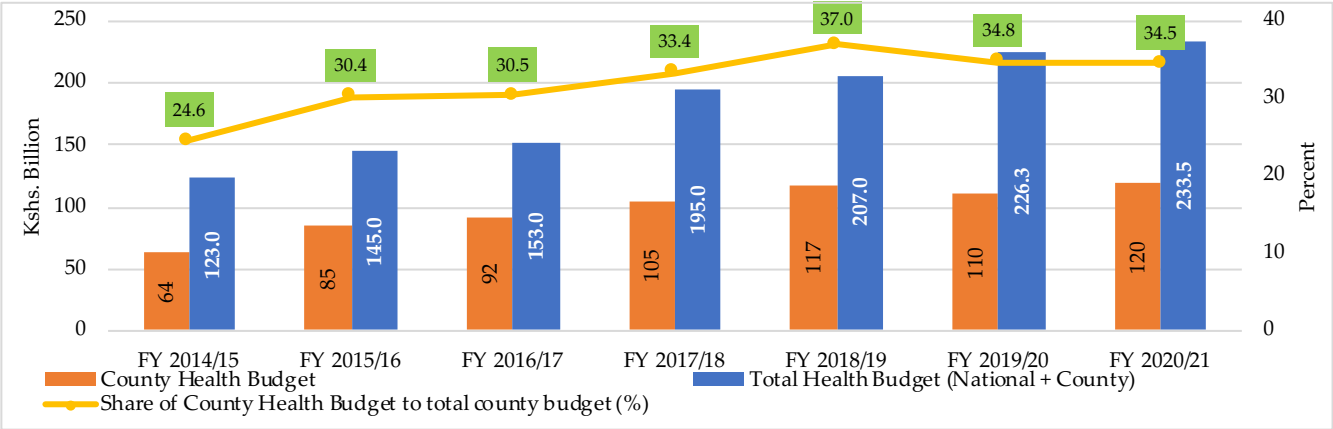
Government Health Sector Allocation as a percentage of total budget (against recommended 15 percent

1. Other heart and respiratory diseases include Pneumonia, influenza, tuberculosis, rheumatic heart disease, pulmonary heart disease, and other forms of heart disease
2. Vascular diseases include cerebrovascular disease, atherosclerosis, aortic aneurysm, and other arterial diseases.
3. The type of cancers includes the lung cancer, cancers of the lip, pharynx and oral cavity, esophagus, stomach, pancreas, larynx, cervix uteri (women), kidney and renal pelvis, bladder, liver, colon, and rectum; also, acute myeloid leukemia
4. Best Practices for Comprehensive Tobacco Control Programs (CDC, 2014)

Abuja declaration)

Budgetary allocation to the Ministry of Health (MoH) has increased consistently in nominal terms overtime, from Ksh 123 billion in 2014/15 to Ksh 233 billion in 2020/21 (national, county health budget) as shown in Figure 5. The large proportion of the funds goes to recurrent expenditures, most of which covers personnel emoluments (County Government Budget Implementation Review Report, 2020/21). To support the health sector, the government has not only been using tax revenues (largest contributor to own source revenue) but has employed several other health financing mechanisms including the cost sharing and health insurance fund.

Figure 6: National and County Health Budget trends on the health sector, 2014/13-2020/21



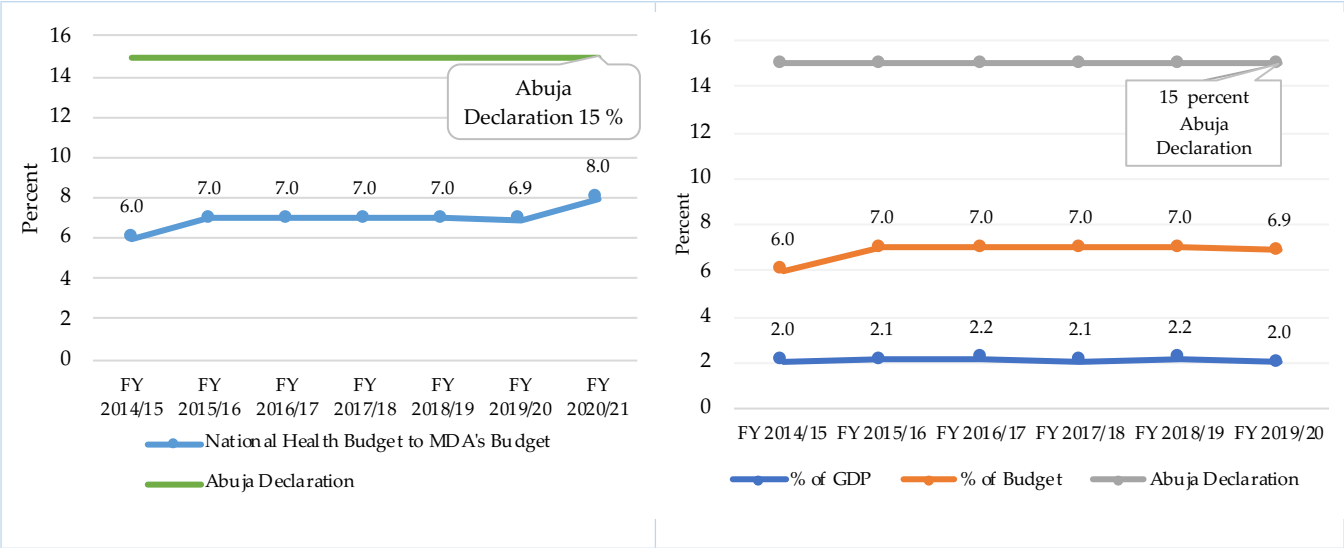
Source: National, county health budget brief, 2019/20 and Annual County Government Budget Implementation Review Report, 2020/21

In addition, since the advent of devolution, the health care budget as the share of total county budgets has been increasing with a slight decline in FY 2019/20, before increasing in FY 2020/21. At the national level, the share of the health budget to the total national budget is below 10 percent since devolution. Despite the increase in health budget in the last two years, the country is yet to achieve the Abuja Declaration target of 15 percent (Figure 6a). Furthermore, the government's health sector allocation, at an average of 7 percent, falls short of the Abuja Declaration's 15 percent yearly budget allocation for health sector reform (Figure 6b). Aside from the total budgetary allocation levels, more than half (63.2 percent in FY 2019/20[4]) of allocated health sector funds is spent on recurring expenditures, the majority of which is spent on employee emoluments. Poor quality of services, frequent shortages of essential commodities (e.g. drugs) are all consequences of the expenditure trends.

Figure 6: National and county Budget trends on the health sector, 2014/13-2020/21.

a. Trend of share of health budgets (percent)	b. Share of Health sector budget and spending (percent)

4 Controller of Budget - Annual National Government Budget Implementation Review Report FY 2019/20

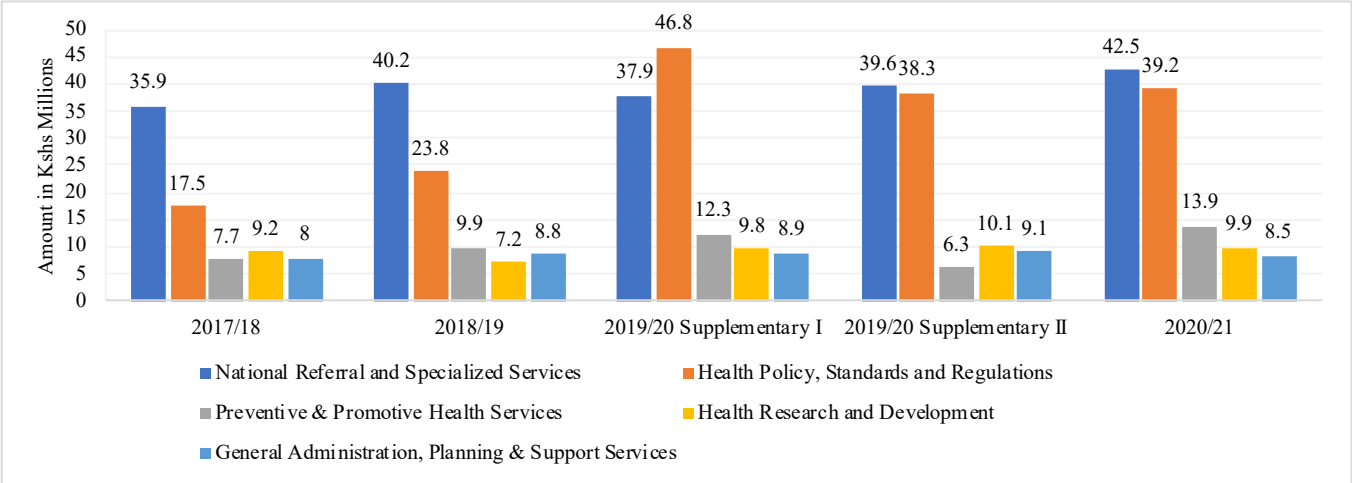


Source: Source: Ministry of Health (Various), Health Sector Reports and Annual County Government Budget Implementation Review Report, 2020/21

The government has faced various challenges, which has affected its capacity to allocate enough resources to the health sector. This includes low and erratic economic growth, hence low incomes and low tax base. Secondly, high population and high poverty rates, which increases the cost of provision of services due to many vulnerable people. Third, escalation of unproductive costs especially related to Non-Communicable Diseases NCDs and inefficiencies due to lack of the best technologies in curative health. For the government to be a major contributor to health financing, these challenges have to be dealt with. Therefore, the government would progressively increase resources in real terms to show its commitment to international obligations like the Abuja declaration. This is possible through innovative ways of raising extra funds including improving efficiency and curbing wastage.

The 2020/21 national government health budget increased by 10.3 percent to Kshs 114 Billion compared with the FY 2019/20 second supplementary budget prepared in April 2020 (Figure 7). However, the allocation is Kshs 1.59 Billion lower than the pre-Covid-19-pandemic health budget, which stood at Ksh 115.6 Billion in the FY 2019/20 first supplementary budget in December 2019 (Figure 8).

Figure 7: Budgetary allocations to the ministry of health, 2017/18 to 2020/21



Source: National government health budget documents, 2017/18 to 2020/21

Resource requirement estimates in 2019 showed that Kshs 209.4 Billion was needed to implement national government health programmes in 2020/21. While these estimates are conservative since they do not consider the impact of Covid-19, they indicate a huge funding gap (Kshs 95.3 Billion). The actual funding gap is likely to be much higher if the health needs stemming from the Covid-19 pandemic were taken into account.

Introduction of the second supplementary report for FY 2019/20 was as a response to the outbreak of COVID-19 pandemic, therefore the second supplementary budget shows the level of allocation immediately after the outbreak of Covid-19 pandemic. The first supplementary for FY 2019/20 shows the prevailing allocation before the announcement of COVID-19 cases in Kenya. However, the 2020/21 budget allocations are compared with the 2019/20 second supplementary budget, as it was the final budget for the 2019/20 fiscal year. Therefore, any reference made in this section refers to the 2019/20 second supplementary budget. Some of the projects and resources allocated by the government in FY 2019/20 to support implementation of UHC programmes and preventive programmes to address and reduce cases of HIV, Malaria, and Tuberculosis are provided in table 3.

Table 3: Major Budget Allocations to support UHC in Kenya FY 2019/20

#	Activity/Programme	Amount budgeted
1.	Allocation to finance activities and programmes for the attainment of Universal Health Coverage	Kshs. 50.5 billion
2.	Allocation to address and reduce cases of HIV, Malaria and Tuberculosis in the country	Kshs. 19.2 billion
3.	Allocation to finance managed equipment services	Kshs. 6.2 billion
4.	Allocations to finance transformation of the health care systems for UHC	Kshs. 5.3 billion
5.	Allocation to cater for free maternity health care	Kshs. 4.1 billion
6.	Allocation to provide medical cover for the elderly and severely disabled in our society.	Kshs. 1.8 billion
7.	Teaching and Referral Hospitals	Kshs. 39 billion

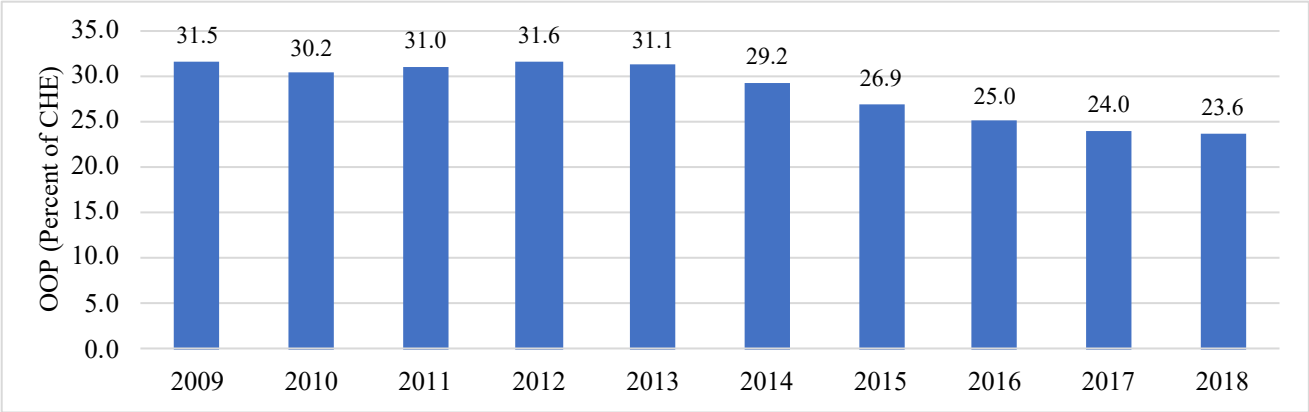
Source: National Treasury, 2020.

5.2 Health Expenditures

5.2.1 Out-of-Pocket Expenditures

The contribution of the private sector to Current Health Expenditure (CHE) is from households and other private sector players. Initially, households contributed more than a third (30 percent) of the CHE until FY 2013/2014 where it declined consistently to 23.6 percent in 2018 (Figure 8). This translates to about Ksh 54 billion in 2018. This is a huge burden on the households because the contribution of the private sector to the CHE is mainly by households either through OOP or through enrollment for health insurance through private health insurance, employer-provided medical insurance, and community health insurance. Given that only about 24.6 percent of Kenyans have medical insurance (NHIF) (NHIF report 2018) and 7 percent under private health insurance schemes, it implies that about 70 percent of the private sector's contributions to the CHE is directly from households (Mbau, Kabia, Honda, Hanson & Barasa, 2020). Given that consumption of tobacco in Kenya is more prevalent among the poor (NTA, 2020), it is likely that much of the tobacco related illness and the associated economic cost would also be higher among the low income group. Hospitalization for tobacco related diseases drives families of the tobacco users into debt traps and can result in severe impoverishment. Thus, high spending on tobacco coupled with the higher healthcare burden of treating tobacco related diseases can push tobacco consumers into a vicious circle of tobacco use, ill health and poverty.

Figure 8: Out-of-Pocket Expenditures (percent of current health expenditure)



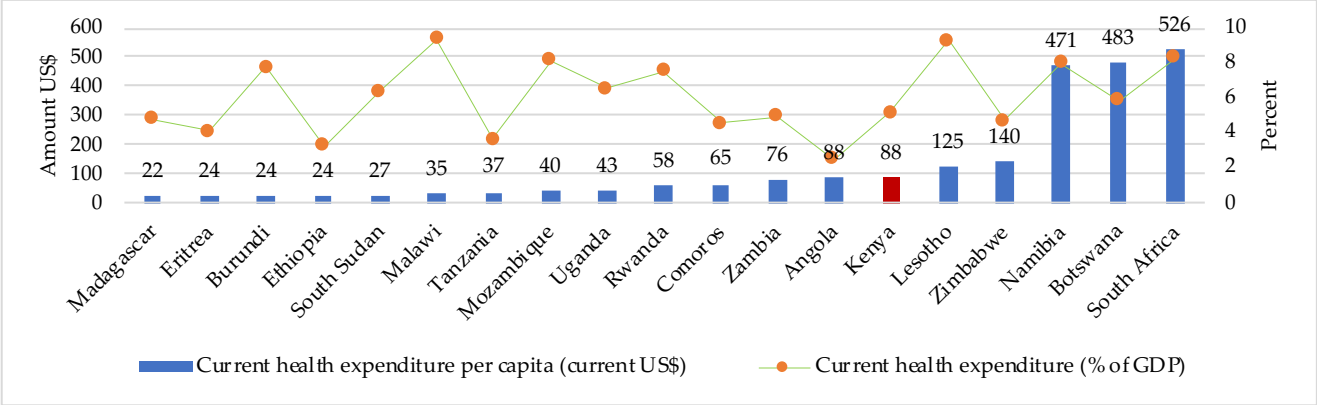
Source: World Bank (2018)

5.2.2 Health Spending Trends

Health spending per capita and as a percentage of GDP

Kenya spends about US$ 88 per capita on health as per the National Health Accounts 2018. Just above the World Health Organization (WHO) recommended amount of US$ 86 per capita, which is the estimated minimum requirement to provide basic health services to a population (Figure 9). Kenya could learn from countries such as South Africa and Swaziland, which have managed to achieve health sector spending targets both in terms of budget prioritization and in terms of spending levels.

Figure 9: Per capita and expenditure health spending in selected countries



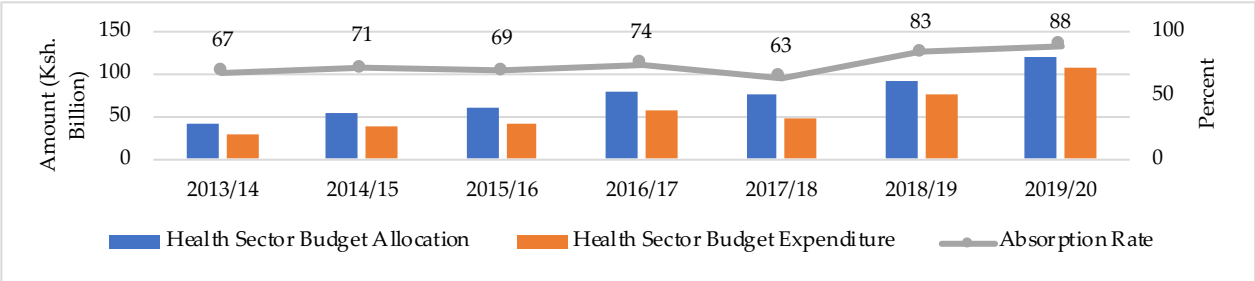
Source: World Bank (2018)

Absorption rates in the Health Sector

Analyzing absorption levels of sector expenditures is important because not all budget allocations are actually spent by various sectors. The analysis indicates that absorption rates in the health sector have been fluctuating over time, with the lowest absorption rate recorded in FY 2017/18. This is attributed to the prolonged electioneering period. Further, budget execution in the sector during FY 2012/2013 was higher than the allocated budget representing an absorption rate of 102 percent. According to the Office of the Controller of Budget

(OCoB), this gap was attributed to inadequate capacity of the users of the system (Figure 10). As such, the information on expenditure provided by Ministries, Departments and Agencies (MDAs) had discrepancies that were not resolved by the time the annual budget implementation report was compiled. Despite the budget allocations rapidly increasing beginning FY 2013/2014 at an average growth rate of 20 percent, the absorption rates stagnated for five years before increasing in FY 2018/2019 by 20 percent from previous year.

Figure 10: Health Sector Budget and Expenditure Absorption Rates



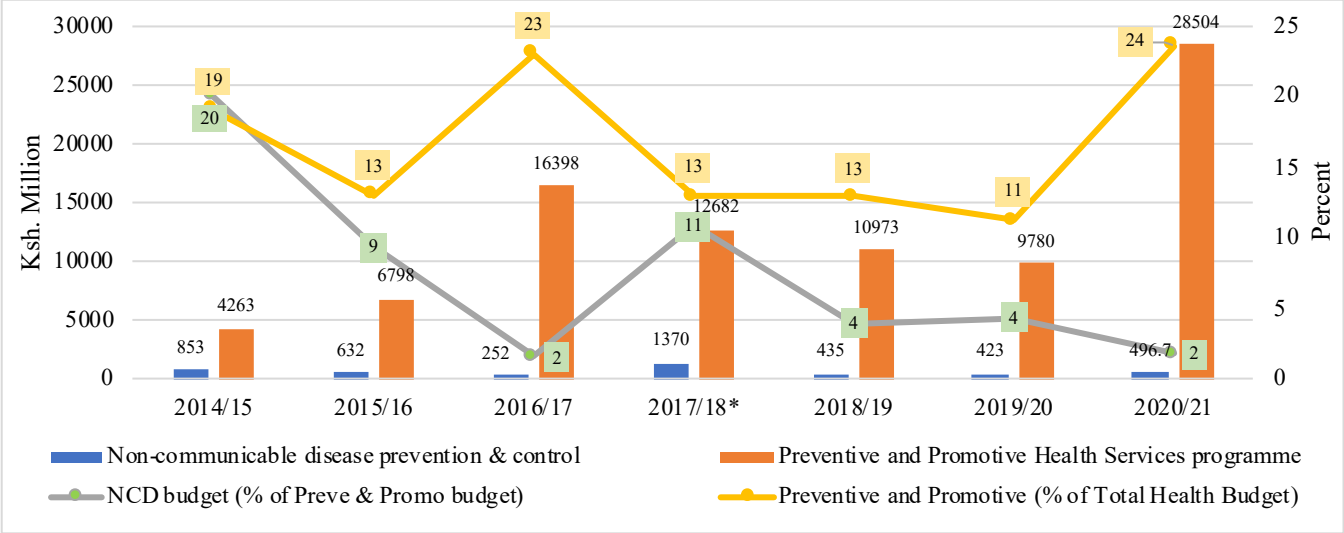
Source of Data: Controller of Budget - Annual National Government Budget Implementation Review Reports.

Health Burden of Tobacco Use

Health burden of tobacco use has consistently remained a challenge in Kenya. Tobacco use remains the leading cause of preventable death in Kenya, killing over 6,000 people every year and contributing significantly to the incidence of non-communicable diseases (Magati, Drope, Mureithi & Lencucha, 2018). Furthermore, tobacco use, and secondhand exposure are linked to non-communicable diseases such as lung cancer, heart disease, stroke, lung diseases, diabetes, and chronic obstructive pulmonary disease (COPD as well as disability and mortality) (Bonnie, et. al., 2015). In addition, over half of the total hospital admissions and slightly more than half (55 percent) of hospital deaths in Kenya are related to non-communicable diseases (MOH, 2015). The outbreak of pandemic and subsequent response measures could have also increased risk for people living with NCDs. For instance, increased demand for specialized treatment during the pandemic period led to increased disruption of treatment for NCDs due to limited availability of facilities such as intensive health units (Kluge, Wickramasinghe, Rippin, Mendes, Peters, Kontsevaya & Breda, 2020).

Despite these tobacco related health risks, through the Tobacco Control Board and Division of non-communicable diseases (NCD), the government has consistently underfunded the programme, hence constraining efforts to effectively enforce and administer Tobacco Control legislations. The tobacco control budget comes from NCDs budget line, but the funding is insufficient to deal with the increasing demand generated by the Tobacco Control Act. For instance, in FY 2019/20, the required budgetary allocation for Preventive, and Promotive Health Services programme was Ksh. 16.14 billion but what was received was Ksh. 11.22 billion, a shortfall of 4.9 billion (30 percent shortfall). However, in terms of sub-programme allocation to NCD prevention and Control sub-programme in the financial year 2020/21 increased by 17.5 percent to Ksh. 496.7 million compared to allocations in FY 2019/20 (Figure 11). In the last 3 years, the share of Non-communicable disease prevention and control sub-programme budget in the preventive and promotive health services programme has been below 5 percent, accounting only 2 percent in FY 2020/21. On the other hand, the preventive and promotive health services programme has been accounting at least 11 percent of the total health budget (Figure 11). However NCD financing will need to be sustained.

Figure 11: Non-Communicable Disease Prevention & Control Sub-Programme Budget and the share in the Preventive and Promotive Health Services Programme

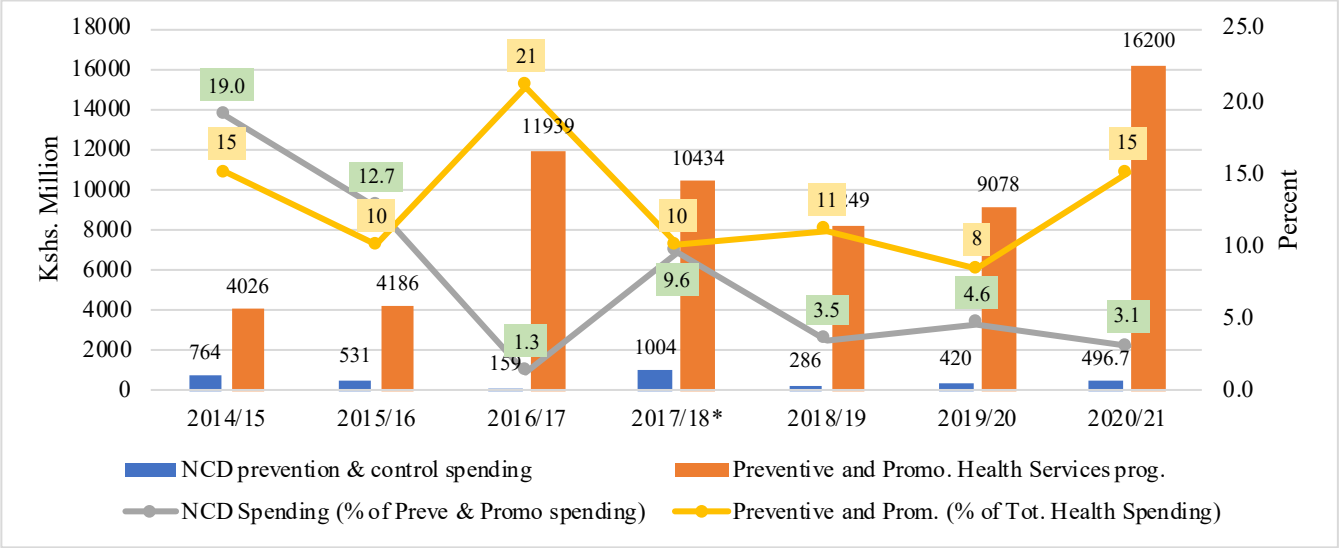


Data Source: Health Sector Working Reports Various Issues.

* ***Note***: *Non-communicable disease prevention and control is a sub programme under the preventive and promotive health service programme.*

In terms of the actual expenditure, it follows the same trend in terms of the share of NCD prevention and control spending in the preventive and promotive health expenditure budget. For instance, in the last 3 financial years, the expenditure in the NCD prevention and control sub-program has accounted for less than 5 percent of the total preventive and promotive health service program expenditures (Figure 12). Similarly, the share of preventive and promotive health expenditure to the total health budget has been fluctuating overtime, with the latest share being 15 percent in FY 2020/21 (Figure 12).

Figure 12: Non-Communicable Disease Prevention & Control Sub-Programme Expenditures and the share in the Preventive and Promotive Health Services Programme Expenditures.



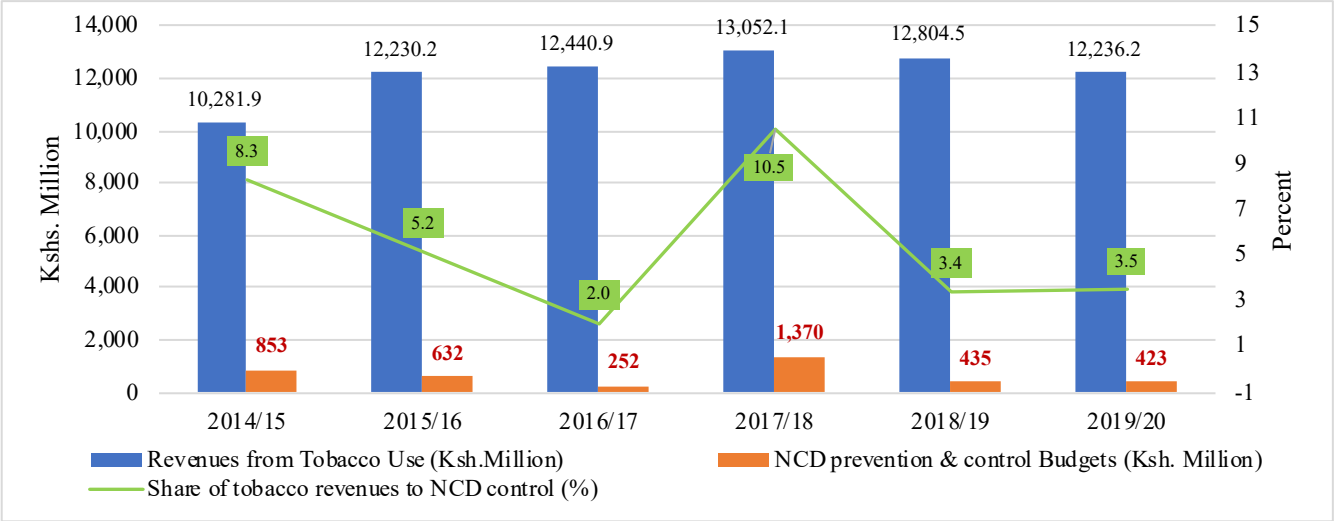
Data Source: Health Sector Working Reports Various Issues.

The NCD prevention and control expenditure for the financial year 2020/21 was largely used for treatment/ management of cancer through screening for cervical cancer, establishment of cancer registries and establishment of regional cancer centres. However, while enhancing access to cancer services is laudable, it is important that the national government allocate resources for specific interventions aimed at ensuring continued access to treatment for all NCDs during the Covid-19 pandemic. Failure to finance prevention and management NCDs could possibly increase mortality rates related to tobacco use and other tobacco related illness. In addition, people with such diseases may be affected disproportionately by Covid-19 due to their underlying health conditions. Further, NCDs can push households deeper into poverty through catastrophic health expenditure or loss of a primary wage earner (National Council for Population and Development, 2017). Accordingly, investment in measures aimed at enhancing NCDs prevention and control is key to eradication of poverty in Kenya.

Tobacco control Financing Gap

Globally, for every 1 dollar received from the tobacco industry in the form of tax revenue, another 3 dollars is used to address its health and social outcomes. In addition, CDC recommends allocating 5 percent of the total annual tobacco control program funds to administration and management of infrastructure development and maintenance activities. That is, 5 percent of the income generated from activities related to the sale and consumption of tobacco should be used to fund a tobacco prevention and control program. However, in Kenya between 2014 and 2020 on average, the share of tobacco revenues to the NCD prevention and control sub-programme budget was 5.5 percent, with a high of 10.5 percent in 2018 and low of 2 percent in 2017 (Figure 13). This implies that on average for every Ksh. 100 revenue generated from the tobacco consumption at least Ksh 5 is used to address health and social outcomes brought about by consumption of the tobacco products. Further, the government can explore the implementation of solatium compensatory funds from tobacco companies. The fund was supposed to be operationalized in Kenya as from 2021 but it is yet to be implemented.

Figure 13: Trend relationship between Revenues from Tobacco Use and NCD Prevention and Control Budgets



Data Source: KNBS Economic Survey Various Issues and Health Sector Working Group Reports

Employment and health issues in tobacco control

Policy discourse among policy makers regarding health and employment effects of taxation in the tobacco value chain. It is important to note that the negative impacts of tobacco production and use are known to outweigh any potential employment benefits. There is no evidence from existing literature that suggests that tobacco growing benefits tobacco farmers. Indeed, both farmers and consumers are victims rather than beneficiaries of the sector. Employment in manufacture of tobacco products is negligible in Kenya. Between 2015 and 2019 it accounted for an average of 0.43 percent of the total employment in the manufacturing sector in Kenya. This averaged 1,474 persons annually[5].

The global community, in law and practice, is encouraging crop substitution away from tobacco. Indeed, the WHO Framework Convention on Tobacco Control (for which Kenya is a signatory) in Article 17 provides that countries should, in "cooperation with each other and with competent international and regional intergovernmental organizations, promote, as appropriate, economically viable alternatives for tobacco workers, growers and, as the case may be, individual sellers. This is a protective measure against the effects of tobacco on global health and wellbeing.

As for health impacts, it is estimated that the economic cost of smoking in Kenya amounts to Ksh. 2.98 billion annually (Drope et al, 2018). This includes direct costs related to healthcare expenditures and indirect costs related to lost productivity due to early mortality and morbidity. The health costs is a fundamental reason used to justify relatively high taxation of tobacco products. The advantage of the uniform tax is that it increases the relative price of tobacco among the low-income households thus reducing consumption among those who are less likely to afford medical care.

5 This is based on information from the Economic Survey (various)

6.0 Conclusion and policy implications

The choice between a uniform and tiered system is still a debate that is yet to be concluded since each tax system comes with its strengths and weaknesses. Based on the past experience in the country, the uniform tax system was adopted because of its simplicity in administration for a certain period of time before switching to a tiered system, which introduced different tax bands within cigarette brands by imposing different tax rates and levying different types of excise tax. Even with the adoption of a tiered system, the common weakness noted with the system is that it provides incentives for price manipulations to the extent that manufacturers can alter their pricing or production behaviour to avoid higher tax liabilities. To address the issue, there is a need for the government to reform excise tax bands in a way that reduces the price gap among brands as done in Egypt, Russia, Poland and Turkey.

Tobacco structure: There is a need for the government to ensure there is full compliance with the WHO FCTC treaty. This includes the following two recommendations: First, there is need for reform in the current tax tiered system by reducing the price gap among the brands. For instance, increasing the excise tax levied on the lower band from the current Ksh. 1893 to Ksh 2000 there about while maintaining the tax levied on the higher band at the current level. This will reduce opportunities for users to switch down in response to tax increases. Further, cognizant of the fact that not all tax efforts succeed in lowering the number of smokers or the amount of tobacco consumed, there is a need for continuous review of tax structures and other control measures. This is necessary in affirming that the increase in tobacco tax has a beneficial impact on users and increases the number of price-sensitive consumers.

Secondly, there is a need for more reliance on specific tobacco excise tax as the share of excise taxes in retail prices' increases. This would ensure there is maximum impact of tobacco taxes on public health by reducing the gap in prices between premium and low-priced alternatives and limiting opportunities for users to switch down in response to tax increases. WHO recommends that in situations where a country like the case in Kenya is relying on an ad valorem tax or a mix of ad valorem and specific taxes, the immediate step would be to set a sizeable specific tax that applies to all brands with an ad valorem tax applied on top of the specific taxes. With time, the ad valorem rate may be reduced with greater increases in the specific tax so that the total tax increases as a share of retail price and the specific tax accounting for a greater share of the total excise tax. If this was adhered to fully in Kenya, between the 2018 and 2020, the case problem as discussed in the introduction where the cigarette prices rose more than the taxes would not have been experienced.

Earmarking tobacco revenues: The current tobacco related revenues generated by the government was about Ksh. 11.4 billion annually. In addition, from the simulation results, it is evident that the taxes on tobacco in Kenya are much lower than the optimum level possible. Therefore, an increase in tobacco taxes should be justified and that the money should be used to pay for tobacco induced healthcare expenditures for the poor and for tobacco control efforts to prevent tobacco related diseases and lower the out of pocket costs. An increase in tobacco taxes should also reduce expenditures on tobacco as increased taxes are known to result in decreased tobacco use.

Securing additional funds for new or existing tobacco-related interventions requires increasing government revenue. However, in Kenya there have been reports of tax evaders and non-complaints with introduction of new or enhanced revenue streams (Ombati, 2018). With tobacco in Kenya, the adoption of the Protocol to Eliminate Illicit Trade in Tobacco Products, by the parties to WHO Framework Convention of Tobacco Control requires its full implementation. This will enhance tax compliance and enforcement efforts in the country.

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Appendix Table 1: Excise Revenue Levied on Commodities and Services (Ksh. Million)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Beer	14,701.5	14,456.0	16,886.2	16,886.2	18,996.8	19,525.7	24,443.5	24,842.5	27,627.3	27,772.5	19,112.9
Wines & Spirits	2,163.4	2,837.8	2,413.4	3,036.9	4,638.3	6,148.4	10,681.4	8,772.9	11,477.9	13,637.3	15,684.4
Mineral Water, Soft Drinks and Juices	1,285.2	1,640.0	1,776.0	2,252.1	2,474.1	2,514.6	3,318.6	3,464.1	4,156.9	3,743.3	5,216.3
Cigarettes	7,324.5	7,626.8	9,527.7	10,199.8	10,281.9	12,230.2	12,440.9	13,052.1	12,804.5	12,236.2	11,466.2
Airtime	0.0	0.0	0.0	0.0	0.0	14,138.8	15,540.9	16,129.3	26,285.4	28,610.0	37,210.8
Financial Transactions	0.0	0.0	0.0	0.0	0.0	7,222.1	11,312.9	13,701.1	10,101.6	27,479.4	11,656.3
Other commodities[2]	954.5	1,101.3	1,788.4	787.0	2,719.6	902.2	2,642.2	2,881.0	829.8	3,379.0	2,368.5
Total	28,439.1	29,672.9	34,403.7	33,162.0	39,110.6	62,682.0	80,380.4	82,843.0	93,283.4	116,857.6	102,715.3

Source: KNBS Economic Survey Various Issues.

Annex Table 2: Summary of Projected Tobacco-related revenues under different tax systems in Kenya

Source/Author	Tax Regime (Tax system)	Tobacco Related Revenues
National Taxpayers Association (2020)	Two-tier specific structure of Kshs. 2,500 per mille for filtered and Kshs. 1,800 per mille for unfiltered cigarettes	The study considered two scenarios: the single tax rate and tiered specific excise systems for cigarettes. The results indicated that the two scenarios would increase tax revenues and excise tax rate in 2021, with the uniform tax recording a 36 percent increase in excise tax rate relative to the 6 percent increase for the tiered specific excise system tax rate. Further, tax revenues were projected to increase by 57 percent in the uniform tax scenario relative to an increase of 28 percent for the tiered specific excise system.

International Institute for Legislative Affairs, 2019	Excise Tax Bill on August 27, 2015 - reintroducing the tiered excise system for cigarettes depending on package attributes and retail selling price	During the period, excise tax revenue on cigarettes increased from Ksh. 10.2 billion in 2013 to Ksh. 12.2 billion in 2019 (Economic survey, 2021). The International institute for legislative affairs (2019), estimated that introduction of Excise Duty Act of 2015 increased amount of revenue by about 3 billion (from 9 billion to 12 billion between 2016 and 2017).
Nargis et al., 2015	Tiered specific system. Using two scenarios -introduction of an ad valorem excise on cigarettes in 2011 to 2014 and introduction of a uniform specific excise for cigarettes of Kshs. 2,500 per 1,000 and subsequent uniform tax increases adjusted to inflation up to 2025.	According to the simulation analysis based on the 2012 baseline scenario and continuation of the ad valorem excise system with minimum specific floor, in 2014, the excise revenue collection from cigarettes tax was expected to be Ksh. 8,977 million. This would have meant a 47 percent increase in excise revenue from cigarettes over the 2012 level in nominal terms. However, the actual excise revenue collection in that year was Ksh. 11,044 million (WHO, 2015) implying 81 percent nominal increase. The additional Ksh. 2,067 million-revenue collection over the predicted level of Ksh. 8,977 million is attributable to the improvement in the tax administration system.

Annex Table 3: Summary of the Estimated Price of Cigarettes under various Tax structures imposed in the country.

Source/Author	Population & Sampling	Model	Tax Structure	Cost of Cigarettes per stick
National Taxpayers Association (2020)	The study used data from GATS (2014), KDHS (2014), and KIHBS (2015/16). The study considered the tax regime that existed in 2015.	WHO Tobacco Tax Simulation Model (TaXSiM)	Used a single tax rate as base scenario (prevailed up to 2015). Estimated the price using a two-tier specific structure of Kshs. 2,500 per mille for filtered and Kshs. 1,800 per mille for unfiltered cigarettes.	The introduction of a uniform specific tax of Ksh. 2,500 per 1,000 cigarettes (from a single tax rate) increases the average price of a pack of cigarettes by 39 percent (from Kshs. 85 to Kshs. 118). On the other hand, the tiered specific excise system increases price by 15 percent (from Kshs. 85 to Ksh. 97.5). It should be noted that the tiered tax was Kshs. 1,800 per 1000 cigarettes for the economy brands and Kshs. 2,500 for the middle and premium brands.
Drope et.al. 2018. The Tobacco Atlas. Atlanta: American Cancer Society and Vital Strategies.	The study used tobacco atlas data collected periodically in Kenya. The target population is people aged 15 yrs. and above	WHO Tobacco Tax Simulation Model (TaXSiM)	A uniform specific rate of Kshs. 2,500 per mille introduced by the Excise Duty Bill of 2015	The study showed that on aggregate the share of total tax on cigarettes was about 44 percent in 2015. A uniform tax rate of 2,500 per 1000 cigarettes would have pushed this share to about 58 percent, which would still be below the best practice standard of 70 percent.

Nargis et al., 2015	Kenya Global Adult Tobacco Survey (GATS) (2014) survey and Euromonitor 2014	WHO Tobacco Tax Simulation Model (TaXSiM)	Tiered specific system. Two scenarios - ad valorem excise on cigarettes in 2011 to 2014 and a uniform specific excise for cigarettes of Kshs. 2,500 per 1,000 in 2015 and subsequent uniform tax increases adjusted to inflation up to 2025.	The study assumed that excise rate increased consistently until 2025, with inflation rate of 8 percent then and economic growth rate of 2.5 percent. This meant that exercise rate per pack of cigarette was supposed to increase by 10.5 percent every year. The study estimated that in 2025, the excise rate per pack of cigarettes would be Ksh. 200 per pack up from about Ksh. 12 per packet in 2015.
Kenya Demographic and Health Survey (KDHS), 2014	KDHS 2014 survey – Sampled Aged 15-49 years	Data collection using questionnaires to capture the number of people consuming tobacco and expenditures on tobacco	The cigarette four-tier tax structure in 2012 was simplified using the Finance Act 2012 by introducing a single tier. Under the regime, 35 percent of RSP or Ksh. 1,200 per mile was charged, whichever was higher	The survey indicated that estimated real price per pack of cigarettes was Kshs. 92 in 2013. An increase from about 84 in 2011 and 2012. This was attributed to introduction of 30 percent import duty on CIF, and 16 percent VAT. The price was also based on a single tier which factored in a 35 percent of RSP or Ksh. 1,200 per mile (whichever was higher).
Kenya Demographic and Health Survey (KDHS), 2008-09	Nationally representative sample survey of 8,444 women aged 15 to 49 and 3,465 men aged 15 to 54 selected from 400 sample points (or clusters) throughout Kenya.	Data collection using questionnaires to capture the number of people consuming tobacco and expenditures on tobacco	Hybrid system based on both RSP and packaging characteristics with latter being predominant	The survey indicated that the estimated real price per pack of cigarettes was about Ksh. 80 in 2007 to 2009. The almost constant price was as a result of various excise tax systems adopted by the government since 2007. The major ones include the RSP model, product characteristics and packaging characteristics.

Annex Table 4: Summary of the Estimated Consumption Prevalence Rates and Cigarettes sticks consumed

Source/Author	Population & Sampling	Model Used	Excise Tax in place	Consumption prevalence	Cigarettes consumed
National Taxpayers Association (2020)	The study used data from GATS (2014), KDHS (2014), and KIHBS (2015/16). The study considered the tax regime that existed in 2015.	WHO Tobacco Tax Simulation Model (TaXSiM)	Two-tier specific structure of Kshs. 2,500 per mille for filtered and Kshs. 1,800 per mille for unfiltered cigarettes	Using the KIHBS data as the base, the study established a smoking prevalence of 7.8 percent, implying that 1.95 million adult smoke cigarettes in Kenya in 2015. The study estimated that if a uniform tax was applied in 2020, the smoking prevalence would have reduced to 7.2 percent, relative to if a tiered system would have been applied, it could reduce prevalence to only 7.7 percent.	The study estimated that using a uniform tax system, the consumption of cigarettes would reduce by 3 million to 33 million cigarettes. But if the government had adopted tiered specific excise system, only 761 thousands cigarettes would have been reduced

Drope et.al. 2018. The Tobacco Atlas. Atlanta: American Cancer Society and Vital Strategies.	The study used tobacco atlas data collected periodically in Kenya. The target population is people aged 15 yrs. and above	WHO Tax Simulation Model (TaXSiM	A uniform specific rate of Kshs. 2,500 per mille introduced by the Excise Duty Bill of 2015	The study estimated that in 2010, the tobacco use prevalence rate in was 13.5 percent and projected that in 2025, the prevalence rate will be 11.1 percent.	The study estimated that 264 cigarettes were consumed per person per year in 2016 up from 256 cigarettes in 2014.
Nargis et al., 2015	Kenya Global Adult Tobacco Survey (GATS) (2014) survey and Euromonitor 2014	WHO Tax Simulation Model (TaXSiM	Tiered specific system. Two scenarios -introduction of an ad valorem excise on cigarettes in 2011 to 2014 and introduction of a uniform specific excise for cigarettes of Kshs. 2,500 per 1,000 and subsequent uniform tax increases adjusted to inflation up to 2025.	Using the GATS survey data, the study estimated that the prevalence rate in Kenya between 2014-15 was 15.1 percent among men and 0.8 percent among women, with the national average of 7.8 percent in a population of 42.927 million then	Number of cigarettes consumed per day per adult was estimated to be 9 sticks and the annual number of cigarettes smoked estimated as 7,403 million by all the tobacco consumers in Kenya.
Kenya Demographic and Health Survey (KDHS), 2014	KDHS 2014 survey	Data collection using questionnaires to capture the number of people consuming tobacco	The cigarette four-tier tax structure in 2012 was simplified using the Finance Act 2012 by introducing a single tier. Under the regime, 35 percent of RSP or Ksh. 1,200 per mile was charged, whichever was higher	Among those aged 15-49, 28 percent of men had smoked more than 10 cigarettes in the past 24 hours	Estimated cigarettes consumed were 40 million cigarettes.
Kenya GYTS (2013) survey	Kenya Global Youth Tobacco Survey (GYTS) (2013) survey	Data collection using questionnaires to capture the number of people consuming tobacco	The cigarette four-tier tax structure in 2012 was simplified using the Finance Act 2012 by introducing a single tier. Under the regime, 35 percent of RSP or Ksh. 1,200 per mile was charged, whichever was higher	Prevalence rate for the youths was 9.9 percent (12.8 percent male, 6.7 percent female) of 13-15-year-old adolescents in Kenya use tobacco. Exposure to second hand smoke among the youth was 24.8 percent at home and 44.5 percent in the workplace	-
World Health Survey, Kenya (2014)	World Health Survey, Kenya (2014) and World Health Organization. 2014. (GATS), Kenya Country Report.	Data collection using questionnaires to capture the number of people consuming tobacco	The cigarette four-tier tax structure in 2012 was simplified using the Finance Act 2012 by introducing a single tier. Under the regime, 35 percent of RSP or Ksh. 1,200 per mile was charged, whichever was higher	Among those aged 8 and above, tobacco prevalence rate was established to be 15.1 percent for men and 0.8 percent for women. while 9.6 percent of boys and 4.0 percent of girls reported they were smokers.	Close to 8 billion cigarette sticks are consumed in Kenya annually according to a statistical report by the World Health Organization

Kenya Demographic and Health Survey (KDHS), 2008-09	Nationally representative sample survey of 8,444 women aged 15 to 49 and 3,465 men aged 15 to 54 selected from 400 sample points (clusters) in Kenya.	Data collection using questionnaires to capture the number of people consuming tobacco	Hybrid system based on both RSP and packaging characteristics with latter being predominant	Among the males aged 15-49, 19 percent were current users of tobacco products while 18 percent smoked cigarettes. Less than 1 percent (0.3) of women said they used cigarettes and less than 2 percent using tobacco of any kind	Close to 6 billion cigarette sticks are consumed in Kenya annually according to a KDHS survey

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