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The KENYA INSTITUTE for PUBLIC POLICY RESEARCH and ANALYSIS

Appraisal of Kenya's Excisable Goods Management System: A Case of Cigarettes and Cigars Excise Revenues

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DP/252/2021

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KIPPRA in Brief

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Abstract

The Government of Kenya introduced the Excisable Goods Management System (EGMS) in November 2013, which is a form of Track and Trace Systems (TTSs) for excisable goods, including cigarettes and cigars. This study appraised the EGMS with a focus on its impact on cigarette and cigars excise revenues and control of related illicit trade in Kenya. Illicit trade in cigarettes and cigars poses significant health risks owing to increased access to tobacco products, besides contributing to loss of government revenue. The study used an Interrupted Time Series Analysis (ITSA) to assess the impact of the EGMS on monthly cigarette and cigars real excise revenue. Review of other countries' experiences in implementation of TTSs provides additional insights to enhance implementation of EGMS. The ITSA results indicate that implementation of the EGMS contributed to an effect that occurred at a fixed point in time (or a pulse effect) and shows evidence of a positive effect on the post intervention trend of real excise revenues for cigars and cigarettes relative to its pre-intervention trend. A level change in revenues is, however, not supported by the results. With respect to illicit trade, a one-off jump in declared production of cigarettes and cigars in 2014 suggests waning levels of illicit tobacco products. It would be important that the EGMS is reviewed continuously for performance to deal with probable metamorphosis of tax evasion. In efforts to expand the system to other goods, a key recommendation to improve the implementation of the EGMS is the need to work out compliance avenues and upgrading of online capability of the system. The experience of other jurisdictions provided important lessons to enhance the effectiveness of efforts to combat illicit trade. To enhance the effectiveness of efforts to combat illicit trade, relevant government agencies, including the Kenya Revenue Authority, the Anti-counterfeit Authority, and the Kenya Bureau of Standards, and private sector associations such as the Kenya Association of Manufacturers should adopt stronger interagency approaches of cooperation – especially efforts towards enhanced market surveillance of product stamps and control of illicit trade by leveraging on EGMS. In addition, the system would clearly benefit from collaboration within the East African Community (EAC) to effectively deal with illicit trade.

Abbreviations and Acronyms

CPI	Consumer Price Index
EGMS	Excisable Goods Management System
FCTC	Framework Convention on Tobacco Control
GDP	Gross Domestic Product
ITSA	Interrupted Time Series Analysis
KAM	Kenya Association of Manufacturers
KNBS	Kenya National Bureau of Statistics
KRA	Kenya Revenue Authority
NCAJ	National Council on Administrative Justice
PEITTP	Protocol to Eliminate Illicit Trade in Tobacco Products
QR	Quick Response
SM	Standardization Mark
TTS	Track and Trace Systems
WHO	World Health Organization

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1.   Introduction

1.1   Study Background

Interventions to address the challenges posed by illicit trade in tobacco and tobacco products has remained a significant issue of policy interest in many countries, Kenya included. One of the innovative ways that is gaining prominence in addressing this challenge is the adoption of the Track and Trace Systems (TTSs), which facilitates real time monitoring of a product's movement throughout its supply chain from the point of production or importation to the retail outlets.

This intervention has two important elements; that is tracking and tracing. Tracking refers to the aspect of marking products with a unique identifier for purposes of monitoring from the point of production or importation to the retail point, including each step of the process, and creating a time and location history for every step. Tracing entails the capability to identify the historical or present location of a product (European Union, 2015). Thus, tracing is a backward-looking concept and the two elements, tracking and tracing, form the concept of 'traceability' to encompass forward looking and backward-looking capabilities.

The TTSs have been applied in both the public and private sectors and have been considered useful in virtually all areas, including in tracking and tracing of shipments of goods (Shamsuzzoha and Helo, 2011); the supply, and distribution of food products (Aung and Chang, 2013); pharmaceuticals; and tobacco and its products (Tayyan, 2013; European Union, 2015). The TTSs serve an important role in determining product origin, protecting public health, and improving efficiency of related processes such as tax revenue collection. Owing to these applications, TTSs have become indispensable tools used in the fight against the enormous global challenge posed by illicit trade in cigarettes and other tobacco products (European Union, 2015; WHO, 2013a).

Tobacco control initiatives do acknowledge the potential role of TTSs in tackling illicit trade. Some of these global initiatives include the World Health Organization (WHO) Framework Convention on Tobacco Control (FCTC) and the Protocol to Eliminate Illicit Trade in Tobacco Products (PEITTP) (WHO, 2003; WHO, 2013b). Both instruments are aimed at regulating illicit trade in tobacco and its products (European Union, 2015). The PEITTP, which came into force on 25th September 2018 requires Parties to co-operate internationally by establishing global tracking and tracing system (Article 8) (WHO, 2003; WHO, 2013b). It requires not only secure marking but also tracking and tracing of cigarettes.

The Excisable Goods Management System (EGMS) represents an example of a TTS that was first implemented in Kenya in November 2013 (Government of Kenya, 2013). The EGMS requires all excisable goods, except motor vehicles, to be affixed with excise stamps to facilitate traceability. It was implemented in two phases: The first phase covering cigarettes, wines, spirits and beer was effected in November 2013, while the second phase covering bottled water, juices, soda, energy drinks and other non-alcoholic beverages, food supplements and cosmetics was effected

in November 2019 (KRA, 2019a; 2019b). Phase two of EGMS was initially planned to be implemented commencing 1st November 2017, but this was delayed after the High Court halted the process following a petition on grounds related to public participation and procurement process of EGMS (Government of Kenya, 2018; Government of Kenya, 2019a; KRA, 2019a). The Court of Appeal decision, however, granted stay of the High Court Judgment issued in 2018, thus allowing the Kenya Revenue Authority (KRA) to proceed with implementation of the second phase of the EGMS (KRA, 2019a).

The challenge of illicit trade in tobacco products in Kenya has persisted over the years, prompting the government implement various interventions in the past, albeit with varying levels of success. Past interventions were largely implemented in 2003, and in 2010/2011 before the introduction of EGMS. The associated success and challenges of these earlier interventions are summarised in Figure 1.1, which reveals that interventions have evolved both in terms of technology used and tax structure.

The excise stamps used in EGMS serve as an "intelligent" tool and contain detailed information about a product. This information includes the manufacturer, brand, date of manufacture or importation and date of release into the market. The stamp is in turn supported by an electronic database containing codes of all the stamps affixed to products dispensed into the market and can be used to differentiate licit from illicit excisable goods (KAM, 2017). The EGMS Regulations that were initially introduced in 2013 and later reviewed in 2017 require both domestic manufacturers and importers of excisable goods to register their operations; install the EGMS in their production lines or import facilities; and affix every package of specified excisable goods with an excise stamp. The Regulation further requires that the excise stamps should facilitate tracking of the excisable goods along the supply chain; and players in the supply chain including manufacturers, importers, distributors, and retailers are required to verify and authenticate the stamps and excisable goods before admitting them into their premises (Government of Kenya, 2013).

Figure 1.1: Past interventions to curb illicit trade in tobacco and tobacco products

2003

An audit by the government in 2003 revealed high levels of illicit trade in cigarettes (diversion of exports to domestic markets; undeclared domestic production; undeclared imports of raw and manufactured tobacco products; under-declared values of tobacco products and supply of counterfeit cigarettes).

Measures introduced to curb the problem then included changing tax strucure from an ad valorem system that utilised ex-factory price to a specific tax system that utilised four cigarette tiers based on retail prices. The government also introduced paper tax stamps affixed on cigarette packs at manufacturing premises.

The impact of these channges was reflected in growth of excise tax revenue by over 50.0 per cent while legal/declared sales of cigarettes and cigars grew by 52.0 per cent. Motivated by the success, the paper tax stamps were extended to other products including wines and spirits.

2010/2011

Review of excise stamps introduced in 2003 revealed the paper tax stamps and the associated serial numbers were easy to counterfeit, proved difficult to proof/verify for enforcement purposes, and in some cases involved theft of stamps in transit or storage.

As a first step to mitigate these challenges, security features of the paper stamps were enhanced (ultraviolet markings, KRA logo, the coat of arms etc.). Other meausres included deploying resident tax officers to facilitate monitoring of tobacco products manufacturing facilities; annual renewal of licences for manufacturers and importers; and requirements to provide detailed information on tobacco products, source and destinations. The four-tier specific tax system introduced in 2003 posed administrative complexities, hence the tax structrue was replaced with a single structure of Ksh per 1,200 mille or 35.0 per cent of retail selling price, whichever was higher.

Another significant policy innovation during this period was the introduction of Electronic Cargo Tracking System (ECTS), which employs Global Positioning System (GPS) technology to monitor deviation of cigarettes destined for exports and those in transit from the agreed cargo route.

The impact of these changes was reflected in 67.0 per cent growth in legal/declared sales of cigarettes and cigars in 2010 compared to 2009.

A key limitation of these intervenstions was the lack of a single data sharing platform, hence the motivation for EGMS.

Source: Authors' construct based on World Bank (2019)

Kenya's EGMS has capabilities that facilitate use of digital excise stamps to verify products along the supply chain, giving the end consumers opportunity to establish authenticity of products through a Quick Response (QR) code using a smartphone application. The EGMS system has three key components: factory flow labelling and verification system; hand-held scanners that allow operators to verify authenticity of the product; and smartphone application that allows the end consumer to verify product authenticity (Figure 1.2).

Figure 1.2: Key components of EGMS and verification capabilities
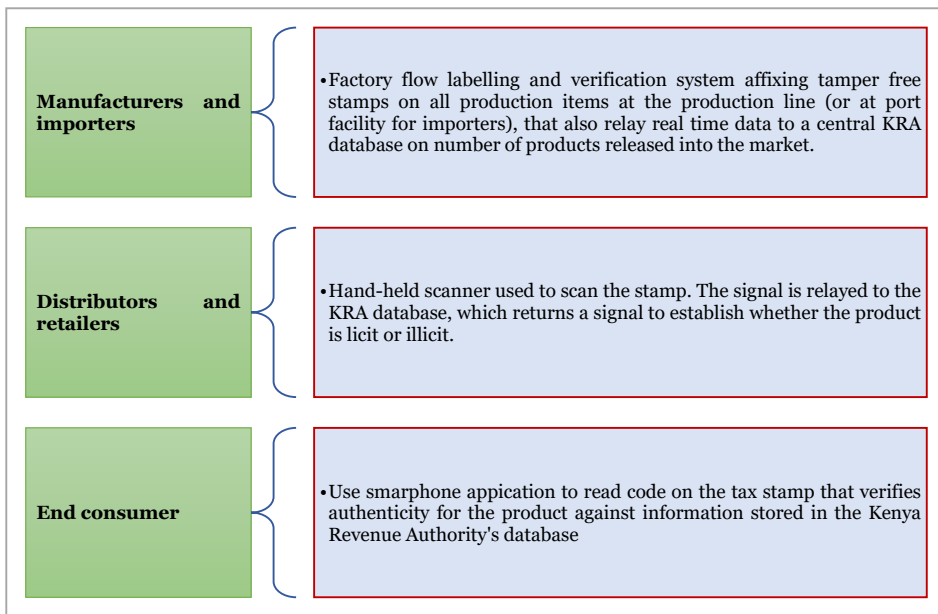
Source: Authors' construction

With respect to its transmission mechanism, the introduction of the EGMS was expected to increase "declared production" of cigarettes and cigars[1] and decrease levels of illicit trade in these products as a result of traceability capabilities. Fundamentally, the increase in declared production is through the EGMS' design feature of capturing and relaying real time production levels within production and importing firms to a central repository managed by the Kenya Revenue Authority (KRA), which is Kenya's national tax administration agency. This capability together with the stationing of KRA at each of the main firms that generate the most excise revenue was expected to curtail under-declaration of actual production levels of cigarettes and cigars. Additionally, the rollout of EGMS, supported by enhanced market surveillance by KRA was expected to address other forms of illicit trade, including counterfeits and cross border smuggling due to increased possibilities of detection.

The implementation of the EGMS was expected to not only increase the level of excise revenues but also alter the trend of excise tax revenues for the targeted excisable goods. All else equal, products for which the EGMS was implemented were expected to experience a significant increase in excise revenue after introduction of the system in 2013. This was plausibly to be accompanied by a decline in the volume of illicit products.

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1   Note that declared production can increase even without changes in actual production. For instance, as a result of a stronger monitoring system in place, possible under-declaration by cigarette and cigar producing firms can be curtailed.

On the other hand, if there is no significant increase in excise revenues following the introduction of the EGMS, this could be indicative of missed opportunities to maximize the impact of the EGMS on excise revenues. It could further suggest the need to address the factors constraining the successful implementation of the system.

1.2   Rationale for the Study

Despite various policy interventions, including the implementation of the EGMS, illicit trade in cigarettes and other manufactured tobacco products is reported to persist (Kieyah et al., 2014; Anti-Counterfeit Authority, 2020), hence there is a need for continuous assessments to ensure policy gains from the interventions are not eroded (Word Bank, 2019).

Illicit trade in tobacco products has numerous adverse socio-economic impacts, including undermining the tax base and public health consequences through increasing tobacco products availability and consumption. Illicit products are also known to cause significant environmental and social harm, such as the harm related to consumption of substandard products (European Union, 2015).

While anecdotal evidence suggests the EGMS has yielded positive results in terms of addressing illicit trade for the qualifying excisable products, an independent appraisal or impact assessment of this system is yet to be done regarding its excise tax revenue enhancing role. There are also gaps in knowledge about the system's contribution to the control of illicit trade. The revenue enhancing role and combating illicit trade are interrelated and are generally considered to be success factors in TTSs (Chaloupka et al., 2015).

The insights gained from this study can provide the basis for policy interventions in Kenya and provide learning experiences to other developing countries that intend to roll out similar systems. This learning experiences for the regional countries is particularly important given that illicit trade is often a cross-border and global problem.

1.3   Objectives of the study

The overall objective of the study is to appraise the EGMS with a focus on its contribution towards the control of illicit trade in manufactured tobacco products (cigarettes and cigars) in Kenya.

The specific objectives of the study are:

1. To review comparatively the Kenyan track and trace system based on global developments.
2. To examine cigarette and cigars excise revenues before and after the implementation of EGMS and draw implications for policy.

1.4   Organization of the Paper

This paper is organized as follows: The first section provides background information and the rationale and objectives of this study. Section 2 provides an overview of institutional framework for implementation of EGMS in Kenya. Section 3 provides a comparative review of the Kenyan EGMS in the global context while section 4 discusses the methods used and the sources of data. Section 5 provides the results and discussions, examining the cigarettes and cigars tax revenues before and after the implementation of the EGMS. Finally, Section 6 concludes and provides policy implications.

2.   Institutional Framework for Implementation of EGMS

The National Treasury formulates economic and financial policies and oversees effective coordination of the government's fiscal policies. Part of these functions relate to taxation, including excise tax policies. Some of the fiscal policy changes, including structure and rates of excise tax on tobacco and tobacco products, are effected through Finance Acts, once the National Treasury makes proposals to Parliament. KRA, established under Section 3 of the Kenya Revenue Authority Act No. 2 of 1995, is mandated with assessment and collection of revenue, administration and enforcement of laws and regulations pertaining to national government revenue. According to Article 209(1) of the Constitution of Kenya 2010, excise tax falls under the jurisdiction of the national government - together with income tax, value-added tax, customs duties and other duties on import and export goods (Government of Kenya, 2010). The county governments are mandated to impose property rates, entertainment taxes, service charges and any other tax that is authorised by an Act of Parliament. The county governments are further assigned the functions of promoting primary healthcare and control of pollution, among other devolved functions. The county governments can therefore indirectly support policy initiatives aimed at discouraging health hazards of tobacco use.

The Excise Duty Act No. 23 of 2015 provides for the charge, assessment and collection of excise duty, and the related administrative provisions. Section 28(1) of this legislation empowers the Cabinet Secretary in charge of the National Treasury to specify in regulations related to excise stamps and related activities, including details on excisable goods to which excise stamps are to be affixed, and the systems for management of excise stamps and excisable goods. Further, Section 45(1) of this legislation empowers the Cabinet Secretary in charge of the National Treasury to make regulations prescribing any fee or charge to be levied on excisable goods manufactured or imported into the country. To mitigate the challenges of tax erosion and maintain real value of tax, Section 10 of this Act requires the Commissioner-General of KRA to adjust the specific rates of excise duty[2] once every year to take into account inflation. The inflationary adjustments are effected at the beginning of every financial year in the month of July (Government of Kenya, 2015).

The Legal Notice No. 53 of 2017 (Excisable Goods Management System) Regulations[3] issued under the Excise Duty Act No. 23 of 2015 provides for administration and enforcement of EGMS. It provides that every package of excisable goods, except motor vehicles, manufactured or imported into Kenya are to be affixed with an excise stamp. The key features of the excise stamp is that it should deter counterfeiting, facilitate tracking of the stamps and excisable goods along the supply chain, enable counting for the production of excisable goods manufactured or imported, and facilitate actors in the supply chain to authenticate

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2   Excise tax on *ad valorem* basis is expected to automatically adjust as price of goods change to compensate for price adjustments, and thus maintain the real value of tax.

3   The more comprehensive 2017 Regulations revoked an earlier Regulation, Legal Notice No. 110 issued in 2013Issued as the 'Customs and Excise (Excisable Goods Management System) Regulations, 2013'.

the stamps and excisable goods. The excise stamp fees (Table A3.1 in Appendix A3) are intended to finance the System through KRA. This Regulation further empowers the Commissioner-General of KRA, in line with public procurement procedures, to appoint a person to supply excise stamps, develop and install EGMS system, and install any other related system. The EGMS Regulation further provides for place and time of affixing excise stamps: For locally manufactured goods, affixing is at the production facility immediately after packaging. For the case of imported goods, affixing is at a place approved by the Commissioner-General of KRA within five days of clearance of the importation. Detailed changes brought about by the 2017 EGMS Regulations are provided in Table A3.2 in Appendix 3.

Further, the Kenyan government has initiated broader interventions to curb the challenges of illicit trade. A key initiative in this regard is the launch of the National Action Plan to Combat Illicit Trade, 2019-2022 (Government of Kenya, 2019b). This Action Plan is intended to provide a framework to combat illicit trade in a synergized and coherent manner regarding institutional enforcement, public awareness, monitoring and reporting. This initiative is in recognition of multiple institutions with mandates to curb the vice, including the State Department of Trade, the Anti-Counterfeit Authority, the Kenya Revenue Authority, the Department of Weights and Measures, the Kenya Industrial Property Institute, the National Police Service, the Judiciary, the Director of Public Prosecutions, and financial institutions with mandates to mitigate illicit financial flows, among others.

The implementation of EGMS by the Kenyan government is part of a global initiative to curb illicit trade in tobacco and tobacco products. Recognizing the challenge and the adverse health consequences of increased access to tobacco and tobacco products, the World Health Organization's (WHOs) Framework Convention on Tobacco Control (FCTC) and its Protocol to Eliminate Illicit Trade in Tobacco Products (PEITTP) requires the tracking and tracing of tobacco products. Kenya signed the Protocol on 29th May 2013 and ratified it on 4th May 2020 (United Nations, 2021). The Protocol came into force on 25th September 2018. Kenya's implementation of EGMS for cigarettes and cigars commenced in 2013 and was therefore ahead of the PEITTP timelines.

3.   Comparative Review of the Excisable Goods Management Systems

This section provides a comparative review of the Kenyan EGMS in the global context. Notably, the experiences of Brazil and Turkey are reviewed. The two countries have implemented track and trace systems (TTS) for cigarettes, similar to Kenya. The choice of the selected countries was informed by literature (Ross, 2015; National Research Council and Institute of Medicine, 2015), showing the two countries were among the first to employ TTS to address growing challenges of dealing with illicit trade in tobacco products. The reviews are synthesized according to thematic issues as summarized in the table provided at the end of this section, notably policy contexts, products coverage, traceability features, policy implementation challenges, administrative implementation challenges, measures to overcome policy and administrative challenges, impacts of illicit trade, and impacts of excise tax revenues (Table 3.1).

3.1   Brazil

Brazil provides an example of the countries that have successfully increased tobacco tax revenues and reduced tobacco consumption through policy interventions. The TTS was initially introduced for tobacco products in 2008 and later extended to beverages in 2012. The introduction of TTS was corroborated by enhancing the legal framework to enhance its effectiveness. Following the introduction of TTS, the government was able to increase tobacco tax revenues by 30.0 per cent.[4] The TTS is required to operate in all cigarette manufacturing lines in Brazil, and enables the enforcement authorities to authenticate and trace tobacco products back to point of manufacture.

3.2   Turkey

Turkey is the first country in the world to introduce TTS in 2007, covering tobacco products, spirits, beer and soft drinks (Ross, 2015). The system has the following capabilities (Ross, 2015; Chaloupka et al., 2015):
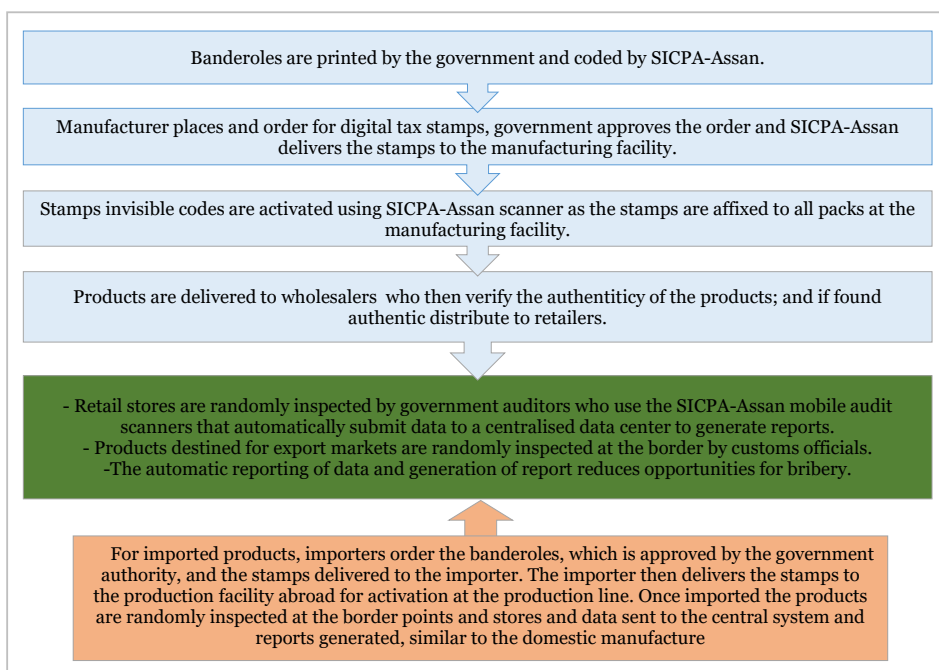
i) Engagement of a private security company, SICPA-Assan that provides secured identification, traceability and authentication solution and services. The covert features engrained in the digital stamps can only be read by SICPA-Assan scanners.

ii) Digital stamp with a two-dimensional data matrix that utilizes invisible ink and unique serial number for each product.

iii) Overt security features that enable consumers to verify the authenticity of a product. This feature is complemented by covert features incorporated during digital stamps activation to enable audit along the supply chain.

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4   http://ensp.org/wp-content/uploads/2017/07/Tobacco-track-and-trace.pdf

iv) Digital tax stamps are applied and activated at domestic manufacturing sites and at manufacturing sites abroad.

v) The system has four types of complementary scanners. The first operates at the production line, while the second is mobile audit scanners to enable the enforcement officials undertake authentication. The third category of scanners include hand terminal scanners for distributors to authenticate the products along the distribution chain. The fourth set of scanners are cash register scanners installed at retail outlets to support the audit.

Turkey started with TTS of a limited capability, but this was gradually enhanced in 2011 and 2014. Some of the challenges experienced include insufficient collaboration with neighbouring countries, and weak complementary efforts such as slow judicial processes for prosecuting offenders. Nonetheless, successes were reported, including increase in tobacco tax revenue of 31.5 per cent within the first year of implementation of TTS despite holding tax rates constant (Chaloupka et al, 2015). Details of flow of tobacco products in Turkey ares shown in Figure 3.1. The system alone will not deliver on its own in combating illicit trade, regular surveillance is required to assess the compliance along the distribution chain. Additionally, the importance of automatic reporting to a centralized database of market surveillance detections of illicit products is imperative, as this diminishes opportunities for bribery and concealment by enforcement officers. The automatic reporting to the centralized database is identical to the Kenyan system.

Figure 3.1: Logistics of tobacco TTS in Turkey

Source: Ross (2015)

Table 3.1: Synthesized review of TTS in Brazil, Turkey and Kenya

	Brazil	Turkey	Kenya
When track and trace system was introduced and the policy context	The system was introduced in 2008 for cigarettes, and later extended to other products such as beverages in 2012. Diversion of cigarettes destined for exports to markets such as Paraguay was one of the major sources of illicit tobacco products prior to introduction of TTS. Only locally manufactured cigarettes are subject to track and trace since imports are considered negligible. This contrasts with Kenya, for which both imports and domestically manufactured cigarettes are subject to track and trace system.	Turkey was the first country to introduce track and trace system in 2007. The system initially covered cigarettes and alcoholic beverages. The introduction of TTS was motivated by the need for taxes on tobacco, but also motivated to concurrently deter illicit tobacco trade to mitigate substitution of licit tobacco products with illicit tobacco products. Similar to the case of Kenya, both local production and imports are subject to TTS. For domestic manufactures, initially only products for consumption locally were subject to TTS, but this was expanded in 2014 to include products destined for exports, making it similar to the Kenyan system. This initiative was aimed at reducing diverted exports and collaborations with neighbouring countries.	Kenya introduced the TTS in November 2013 through Legal Notice No. 110 of 18th June 2013, initially covering cigarettes and other manufactured tobacco products, wines, spirits and beer. The product coverage has been expanded to bottled water, juices, soda, energy drinks and other non-alcoholic beverages, food supplements and cosmetics through Legal Notice No. 53 of 2017 effective November 2019. The introduction of the system was motivated by the need to address persistent challenges of illicit trade in fast-moving consumer products and the need to enhance excise revenue.
Products coverage	The system started with tobacco but gradually introduced other products including beverages and medical products.	Besides tobacco, other products covered include spirituous beverages, beer, soft drinks, prescription medicines, non-prescription medicines, and some medical and food supplements.	Wines, spirits, beer and cigarettes have been subject to EGMS since 2013. Since the product coverage has been expanded to include bottled water, juices, soda, energy drinks and other non-alcoholic beverages, food supplements and cosmetics. The ground for the court cases were anchored on industry lobbying and Kenyan constitutional and legislative framework that requires public participation in formulation of policies and legislations, as well as analysis of potential economic impacts of proposed legislations as required by the Statutory Instruments Act, 2013.

Unique traceability features	Brazil	Turkey	Kenya
	Exported cigarette packs are marked by visible two-dimensional matrix code on packets, unlike invisible codes for domestic products. The distinctions are aimed at deterring products destined for exports to be diverted to domestic economy.	The digital tax stamps have overt and covert security features such as invisible ink and unique serial numbers that can be authenticated with scanning devices. The system allows for use of four types of scanners. The first operates at the production line. The second is mobile audit scanners to enable the enforcement officials undertake authentication. The third category of scanners includes hand terminal scanners for distributors to authenticate the products. The fourth categories of scanners are installed at retail outlets to support the audit. The process allows comparing scanned information with centralized database information to prompt alerts on whether the products are illicit. The automatic generation of reports on whether the products subjected to a scanner are illicit mitigates the opportunities for corruption since the evidence generated is outside the control of the audit officers. For both domestically manufactured and imported products, digital stamps are affixed and activated at the production line following advance application. Random checks by tax officials at retail stores and border points enhance compliance incentives. The overt security features that enable consumers verify the authenticity of a product using smartphone application, and the covert features incorporated during digital stamps activation to enable audit along the supply chain facilitate ease of detection and reporting to the centralized database.	The unique marking features for Brazil contrasts with the Kenyan system, which does not make the distinctions for products destined for exports. Nonetheless the Kenyan TTS provides for overt features visible to consumers, semi-covert features for scanning and detection by distributors and covert security features for scanning and detection by the KRA. The Turkish system is largely similar to the Kenyan system in terms of capability of product authentication at different stages of the supply chain (Production line, portable audit scanners used by enforcement officers during market surveillance, hand terminal scanners used by distributors, and scanners at retail outlets). The consumers can authenticate products through a free '*soma label*'[5] mobile phone application listed on Google play store.

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5 'soma' is a Swahili term meaning read. The phrase can therefore be translated to mean 'Read the label'.

	Brazil	Turkey	Kenya
Policy related implementation challenges	The challenges experienced relate to weak complementary policies with regards to different forms of illicit trade in tobacco products e.g. lower sanctions are applied to trade in contrabands (legal brands traded illegally through means such as tax evasion) as opposed to counterfeits. Such loopholes create incentives for substituting one form of illicit tobacco products for another, thus countering public policy objective of lowering use of tobacco products. Additionally, there was a delay in adopting international serialization standards and aggregation capabilities.	Challenges experienced include insufficient collaboration with regional countries involved in trading of tobacco products; weak complementary efforts such as slow judicial processes for prosecuting offenders and weak penalties upon conviction. Additionally, lobbying from the industry delayed implementations of the system. Similar challenges have been experienced in Kenya. Another challenge experienced by Turkey is that the system does not support opportunities for international data exchange on illicit tobacco products.	Similar to Brazil, Kenya is yet to adopt international serialization, and the system further do not provide for aggregation, which entails linking of a cigarette master case to cigarette cartons and packs. Aggregation is an important component of a reliable track and trace system since authenticating a smaller unit (e.g. cigarette pack), means that all information becomes available up to the single product level.
Administrative implementation challenges	Weak interagency coordination with neighbouring countries such as Paraguay limits the opportunities for addressing cross border flows of illicit cigarettes.	The system was initially constrained by weak interagency collaboration in information sharing and prosecution, but there have been initiatives to address the challenge.	Key administrative challenges as reported by key informant interviews feedback relate to costs of excise stamps especially for smaller firms, online connectivity challenges and weak inter-agency approach in the design and rollout of EGMS. The effectiveness of EGMS depends partly on market surveillance to reduce incentives for commingling licit and illicit products. Enhanced surveillance however requires additional human capital.

	Brazil	Turkey	Kenya
Interventions to address the policy challenges	Cooperation agreement was initiated between the Brazilian government and the Paraguayan government on areas of sharing intelligence data related to illicit trade. Paraguay is the main source of illicit tobacco products imported into Brazil.	There have been enhanced enforcement efforts in 2011 through stiffer penalties on illicit trade, with fines equal to double the value of illicit products.	In Kenya the fight against illicit trade in tobacco products is part of the broader medium and long-term government agenda to counter illicit trade including counterfeits, substandard products, and tax evasion either through imports or undeclared/underdeclared production. In 2014, government agencies involved in enforcing legislations on anti-illicit trade (e.g. KRA, Kenya Bureau of Standards, Anti-Counterfeit Authority) with support from the National Council on Administrative Justice (NCAJ) and the Kenya Association of Manufacturers (KAM) developed the *Enforcement Manual to Combat Illicit Trade in Kenya*, to act as a guide for law enforcement agencies. The national assembly has also through its oversight role (via the Public Investments Committee) inquired into procurement concerns and other issues such as cost implications for manufacturers. Though not specific to tobacco products, the launch of the National Action Plan and Implementation Framework to Combat Illicit Trade 2019-2022 was intended to overcome challenges related to institutional coordination among the multiple agencies involving in fighting the vice.
Interventions to address the administrative challenges	Tax and customs administration capacity was enhanced through improved coordination and intelligence sharing among key institutions such as police and judicial authorities.	There has been enhanced surveillance by the revenue authority through random compliance checks. The offences for non-compliance attract fines equal to double the amount of taxes owed on illicit products. The cooperation among the revenue authority, ministry of justice, ministry of economy, ministry of foreign affairs and the ministry of internal affairs have also been enhanced for ease of information sharing.	In order to create fairness in cost of stamps for low priced products the 2017 EGMS Regulation reviewed the excise stamps fees structure from Ksh 1,50 per stamp for all products to a differentiated structure. There was however a resistance by the industry players for a standard price of excise stamps for unclear objective measures of determining differentiated prices. KRA hired additional human capital to enhance market surveillance to complement the rollout of EGMS.

	Brazil	Turkey	Kenya
Impact on illicit trade	Within the first two years, the track and trace system exposed seven tobacco manufacturers engaged in illicit activities and subsequent closure of their operations. There is also a decline in the level of illicit trade, though the estimates vary.	The impact on illicit trade is unclear with the share of illicit cigarettes estimated to fluctuate at around 14.0 per cent to 17.5 per cent. In comparison, Kenya lacks an independent estimates on the magnitude of illicit tobacco products, and this proves to be a challenge in establishing an accurate impact of TTS. Estimates on the level of illicit tobacco products by tobacco companies and market research companies show some variation. Nonetheless inference based on increase in legal cigarette sales and tobacco tax revenues suggests that the share of illicit tobacco products may have declined.	Preliminary assessments of EGMS indicate increase in legitimate cigarette sales and real excise tax revenues on cigarettes, which suggest waning levels of illicit trade.
Impact on excise tax revenues	With introduction of the TTS, the Brazilian government was able to concurrently increase tobacco taxes, reduce tobacco use and increase tobacco tax revenues.	There was an increase in tobacco tax revenue of 31.5 per cent within the first year of implementation of TTS despite holding tax rates constant. With implementation of the system, total volume of cigarettes consumed declined, while cigarettes prices and tax revenue has been increasing.	There are indications that excise tax revenue increased for products subject to EGMS after introduction of the system. Between 2013 and 2015 real excise tax revenue for cigarettes and cigars increased by 7 percent, that of beer increased by 6 percent, while that of wines and spirits increased by 36.0 per cent[6].

Source: Authors' compilations based on Ross (2015); Ross (2017); Chaloupka et al (2015); Tayyan (2013); KRA (2018)

3.3   Summary and Key Lessons from Country Reviews

The reviews along various thematic issues, including policy context, products coverage, unique traceability features, policy and administrative challenges, and impact on illicit trade shows the importance of the following approaches:

i)   Gradual roll out of the system and winning the confidence of the industry. The countries reviewed commenced with track and trace of a few products such as tobacco, gradually expanding to other products prone to illicit trade.

ii)   Use of a combination of overt (explicit) and covert (concealed) features to provide complementary features in detection of illicit products along the distribution chain. Visible features that distinguish tobacco products for use domestically and those destined for exports is imperative to mitigate products destined for exports being diverted for local consumption.

iii) Complementary efforts in interagency collaborations, locally and across jurisdictions enhance the effectiveness of TTS. Priority countries for interagency collaborations are usually those that are either source or destination for products prone to illicit trade, especially bordering jurisdictions. For example,. a cooperation agreement initiated between the Brazilian and the Paraguayan governments on areas of sharing intelligence data and information related to illicit trade proved to be useful in cross border flows of illicit tobacco. In Turkey, there is a close cooperation among the revenue authority and the ministries in charge of justice, economy, foreign affairs and internal affairs.

iv)   Policy initiatives to increase fines on illicit trade corroborate the effectiveness of TTS. This was one of the initial challenges faced by Turkey, as slow prosecution and low penalties dampened the gains from introduction of TTS.

v)   The review also suggests the importance of independent estimates of illicit trade in tobacco products. While there is a general indication that illicit trade in tobacco products declined after introduction of TTS largely based on observable variables such as level of legal sales of licit cigarettes and tobacco tax revenues, the exact magnitude by which illicit trade in tobacco products declines remains a challenge.

4.   Methodology and Data

This section presents the methodological approach used to address the second objective of the study. To examine the pre- and post-excise revenue changes, this study applied intervention analysis techniques using real excise tax revenue time series data for cigarettes and cigars.

4.1   Theoretical Framework

The assessment of impact of an intervention such as the introduction of a new regulation is usually done using randomized experiments (Angrist and Pischke, 2009; Lagarde, 2012). However, in most cases, due to study design, data, or cost related challenges, alternative study designs or quasi experimental design is the only option available to evaluate policy impacts (Largade, 2012).

One of the quasi experimental designs commonly used for analysing the impact of a policy change is intervention analysis, the Interrupted Time Series Analysis (ITSA), which is also referred to as the segmented linear regression approach (Box and Tiao, 1975; Largade, 2012; Enders, 2004; Linden, 2015; Vujić, Commandeur, and Koopman, 2016). In its applications, ITSA is used to model procedures that incorporate the effects of exogenous interventions, such as policy changes, in the analysis of time series data. The approach has been used in many areas of study including in public policy by Muller (2004) and regulatory actions by Briesarcher et al. (2013). Intervention analysis is a robust method of measuring the effects of an intervention when randomization or identification of a control group are impractical (Linden, 2015).

ITSA model for a time series $\{y_t\}$ takes the following form (Box and Tiao, 1975; Matarise, 2011):

$$\{y_t\} = f(k, X_t, t) + Z_t \qquad (1)$$

Where: $y_t = F(y_t)$ is an appropriate transformation of y_t (e.g. logarithmic form), $f(k, X_t, t)$ is a function reflecting the impact of some exogenous intervention X_t; k is a set of unknown parameters, and Z_t is the stochastic noise.

$Z_t = \pi(B) = [\theta(B)] / [\emptyset(B) \, \alpha(B)]$ is the conventional Box and Jenkins (1976) ARIMA model with X_t following a dynamic model such as $f(\delta, \omega, Xt, t) = \sum_{(j=1)}^{k} [\omega(B)]/[\delta(B)] X_t^{(i)}$ with δ and ω representing the k unknown parameters as earlier defined. The intervention model can be simplified to the general transfer function model of the form:

$$y_t = Z_t + [\omega(B)]/[\delta(B)] X_t^{(i)} \qquad (2)$$

With $Z_t = \pi(B)$ as above and $X_t^{(i)} = \{^{1,\ t=i}_{0, otherwise}$ that is an indicator variable taking on the values 1 for occurrence of the exogenous intervention and 0 for non-occurrence of the exogenous intervention.

4.2   Analytical Models

There are two general ways widely used in specifying a typical interrupted time-series regression model that can be applied for a single series, such as cigarettes and cigars excise revenues. The estimation processes can use a standard ordinary least squares (OLS) regression but in presence of autocorrelation, an autoregressive moving average (ARMA) model is applied (Linden, 2015). The OLS framework is viewed as a more flexible approach (Linden, 2015) and is applied in this study.

The regression model used to examine the effects of the EGMS on cigarettes and cigar excise was specified as:

$$Y_t = \beta_o + \beta_1\ Time + \beta_2\ JAN + \beta_3\ EGMS_l + \beta_4\ Time * EGMS_l + \varepsilon_t \qquad (3)$$

Where: Y_t, the dependent variable, is the real excise revenue of cigarettes and cigars measured monthly from April 2013 through July 2015 (giving a total of 28 observations). β_o represents the intercept of the estimated regression equation, reflecting the measure of real excise revenue at the baseline level or when the independent variables are fixed at zero. *Time* represents the time variable and in our case, it varied from 1 to 28. Its coefficient, β_1 measures the monthly average change in excise revenues. *JAN* and $EGMS_l$ are intervention dummies. The first dummy, *JAN* measures a possible pulse effect (or one-time effect) and it takes a value of one (1) for January 2014 and zero for all the other months.

$EGMS_l$ is a dummy that measures a possible change in level of real excise revenue. It is defined as zero in the pre-intervention period and 1 in the post-intervention period. Its coefficient, β_3 measures the change in level (or pure jump) after the introduction of the EGMS. The last term in the model is the interaction of two variables, *Time* and $EGMS_l$ and its coefficient β_4 represents the difference between the pre-intervention and post-intervention slopes of the real excise revenue series. It thus measures a possible change in trend of real excise tax revenues following the introduction of the EGMS.

4.3   Data

The data used to examine the impact of the EGMS was time series data. The real excise revenues of cigarettes and cigar series denoted by Y_t spanned 28 months (from April 2013 to July 2015). The intervention point is December 2013. Since excise taxes are realized as transactions take place (in a specific month) and are remitted to KRA in the following month, we aligned the collected excise revenues to the period when they are realized. Even though data was available for more recent periods, the analyses were restricted to the period up to July 2015 because there was a separate intervention in form of an excise tax policy change. Therefore, including periods after July 2015 would make it difficult to disentangle the tax effects from the effects of the EGMS. All excise tax data was sourced from KRA. These nominal monthly excise tax revenues were converted into real excise tax revenues using the monthly consumer price index (CPI) for cigarettes. The month of July 2013 was picked as the base month for the CPI (thus adjusting the previous base month from February 2009).

5. Results and Discussions

5.1 Graphical Analysis of the Time Series Data

Figure 5.1 displays the line graphs of nominal and real values of excise revenue for cigarettes and cigars. The graph also includes the trends of these values. The nominal values are included to check the extent of price effects. Both the nominal and real values exhibit a similar pattern over time, characterized by large variations in values at specific points in time.

Besides the increase in realized excise revenue in the immediate period after December 2013 (represented by the vertical line), there are other months, within the range of values analyzed, that also exhibit relatively abrupt changes in real excise revenues. One of the notable changes in the series is the spike in May 2014, which does not seem to be related to any specific event at the time. In addition, the CPI for cigarettes was stable during that time. A plausible explanation of the spike is that excise revenue tends to increase a couple of months leading to the end of each financial year (which ends in the month of June). The rise in realized revenues is associated with the intensified measures by the revenue authority to meet the annual revenue targets and the efforts by firms to meet compliance deadlines. This increase is observable for the month of May for the years 2013 and 2014. The relatively large dip in realized revenue in July 2014 is explained by the relative slowdown in tax mobilization efforts that would be reasonably associated with a new financial year.

Figure 5.1: Monthly nominal and real excise revenue for cigarettes and cigars (April 2013 to July 2015) in Kenya (Ksh millions)
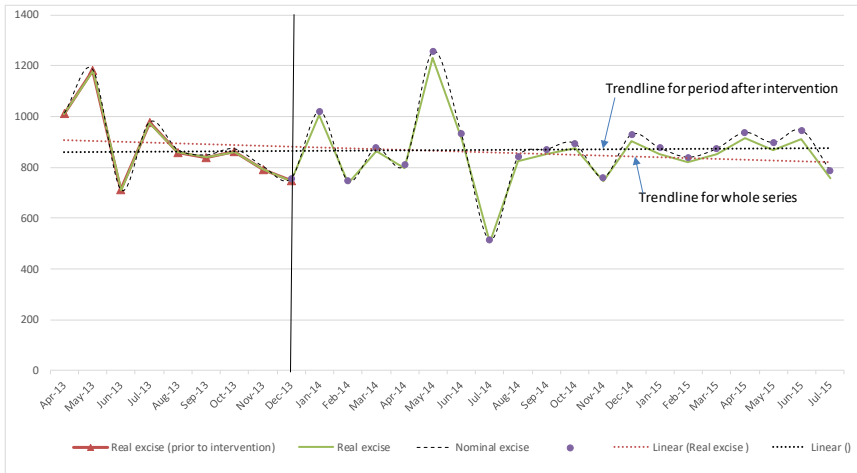
Data sources: Nominal values are from Kenya Revenue Authority (KRA), while real values are adjusted using the monthly cigarettes CPI from KNBS

The trend for the full data series has a slight downward slope. A more pragmatic approach to ascertain any trend changes would be to include a variable that

captures any possible trend changes in the period before and after the introduction of the EGMS. Guided by the time series plot of cigarette and cigar revenues, and the graphical analyses, it is hypothesized that the introduction of the EGMS may have had effects on the level and trend of the real revenues. There is also a possible pulse effect given the relatively large rise in realized real excise taxes in January 2014.

5.2 Real Excise Revenue before and after the Implementation of EGMS

This section presents empirical results of the intervention analysis of real cigarettes and cigars excise revenue before and after implementation of EGMS, first providing the descriptive statics of the data, followed by diagnostics and regression analysis.

5.2.1 Descriptive statistics

The excise revenue data realized for cigarettes and cigars are presented in Table 5.1. There were 28 observations for each variable. The mean monthly cigarette revenue was about Ksh 865 million (Table 5.1). The mean for the EGMS dummy ($EGMS_l$) of 0.68 implies that 68.0 per cent of the observations fall after the intervention period of December 2013.[7] The mean of 0.04 for *JAN* dummy simply reflects the intuitive fact that the one observation for the one-time pulse effect in January 2014 accounts for only about 4.0 per cent of the 28 observations from April 2013 to July 2015. The mean of 14.50 just reflects mean of the 28 months serialised (1, 2, 3, …, 28).

Table 5.1: Descriptive statistics

	Observations	Mean	Minimum	Maximum	Std. Dev.
Real excise revenues (cigarette and cigars) (Ksh millions)	28	864.1500	503.0700	1231.7500	139.1800
Time	28	14.5000	1.0000	28.0000	8.2300
$EGMS_l$	28	0.6800	0.0000	1.0000	0.4800
JAN	28	0.0400	0.0000	1.0000	0.1900
Time*$EGMS_l$	28	13.5700	0.0000	28.0000	10.5600

5.3 Regression Analysis of the Impacts of EGMS

The estimation process began by checking for the time series characteristics. The overall idea was to check that the specified model was correctly specified. The

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7   Intuitively, recall from Section 4.2 that is defined as zero in the pre-intervention period and 1 in the post intervention period.

data was inspected for stationarity using the Augmented Dickey-Fuller (ADF) test, which indicated that the series was stationary. The data was also checked for presence of seasonality effects. The findings indicate that the realized revenue for the months of May were significantly higher than the other months. A seasonal dummy for the month of May was, therefore, introduced in the model specified in equation (1). It is also important to test for the presence of autocorrelated errors to gauge the adequacy of the time series model. Adequacy relates to whether important variables have been left out of the time series, which may be exacerbated by a wrong functional form.

In testing for autocorrelation, we computed the autocorrelation function and the partial autocorrelation function of the real excise revenue series. The Autocorrelation Function (ACF) and the Partial Autocorrelation Function (PACF) processes of the real monthly excise revenue series exhibited exponential decay. Subsequently, the time series data for cigarettes and cigars real excise revenue for the period from April 2013 through July 2015 was used to fit an OLS regression model of the form:

$$Y_t = \beta_o + \beta_1 \, Time + \beta_2 \, JAN + \beta_3 \, EGMS_l + \beta_4 \, Time * EGMS_l + \beta_5 \, MAY + \varepsilon_t$$

Where: Y_t is the real excise revenue of cigarettes and cigars measured monthly from April 2013 through July 2015. *Time* represents the time variable and this varied from 1 to 28. $EGMS_l$ and *JAN* are intervention dummies while, *Time * EGMS_l* is an interaction term whose coefficient measures the difference between the pre-intervention and post-intervention slopes of the real excise revenue series. *MAY* is a seasonal dummy to capture seasonality as established from the graphical analysis in Section 5.1

The estimation procedure estimated an OLS model using the Newey-West standard errors (Newey and West, 1987) to mitigate any autocorrelation or heteroskedasticity in error terms. The results are reproduced in Table 5.2. The F-test *(Prob>F=0.0000)* indicates that the model as a whole has some explanatory power. This model is used to interpret the results of the estimation.

Table 5.2: Regression results of the effects of EGMS on real excise revenues for cigarettes and cigars with seasonal effects

				Number of observations = 28	
				F (5, 22) = 47.28	
				Prob > F = 0.0000	
Y	Coefficient	Standard error	P-value	95% confidence interval	
Constant	949.1834	76.2778	0.000	790.9929	1107.3740
EGMS_l	73.1647	74.8000	0.3390	-81.9610	228.2904
JAN	185.7746	65.4730	0.0100	49.9920	321.5573

MAY	238.5441	106.4399	0.0350	17.8013	459.2870
Time	-22.4752	11.4147	0.0620	-46.1470	1.1975
*Time * EGMS$_l$*	22.3578	12.4282	0.0860	-3.4166	48.1322

The starting level of real excise revenue is estimated at Ksh 949 million and this appears to decline significantly every year by an average of Ksh 22 million within the sample period (as indicated by the coefficient of *Time*, which is statistically significant at 10.0 per cent). The coefficient of the dummy *JAN* (measuring a possible pulse effect) is positive and statistically significant (at 1.0%), suggesting evidence of a significant pulse effect (i.e. one period change in the real excise revenues). The pulse impact could be associated with intensified enforcement efforts and escalated compliance immediately following the EGMS implementation.

The coefficient of *EGMS$_l$* (measuring a change in level) is not statistically significant but the trend effect is significant and positive. It suggests that there is a significant increase in the monthly trend by Ksh 22.4 million that may be attributed to the implementation of the EGMS. In taking these effects together, the results suggest that implementation of the EGMS positively altered the trend or slope of the cigarettes and cigars real excise revenues in the post-intervention period relative to the pre-intervention period without significantly altering the level of these real excise revenues at the intervention point. The coefficient for seasonality for the month of May is statistically significant, corroborating the visual graphical inspection revealed in Section 5.1, reflecting improved model fit.

The findings of the intervention analysis suggest that the introduction of the EGMS in November 2013 may have resulted in an increase in real excise revenue of cigarettes and cigars at a point in time (captured by the realized increase in real revenues in January 2014).

5.4 The Role of the EGMS in Controlling Illicit Trade

Illicit trade can be undertaken both by illicit players who are not registered with relevant government agencies, and by legitimate players whose business operations are contrary to the applicable laws and regulations. Activities of legitimate players can contribute to illicit trade if such players participate in unscrupulous activities such as under-declaration of production or smuggling back of products declared for exports. Some of the forms of illicit trade are summarized in Table 5.3. In the international context, it has been shown that major international tobacco companies have engaged directly and indirectly in illicit trade (World Bank, 2019).

Table 5.3: Summary of tobacco fraud types

Fraud type	Definition
Illicit manufacturing	A product bares a trademark without right holders' consent. Excise tax is rarely paid.
Transit fraud and ghost exports	Product declared for exports is sold in local market.

Diversion	Products(s) declared for consumption in one country with intention of illegally moving the same products into another territory where taxes and duties would otherwise be higher.
Mis-declaration	Tariff code mis-declared to attract a lower rate of duty
Round tripping	Initially exported products are smuggled back to avoid taxes.
Smuggling	Illegal movement of goods.
Undervaluation	Incorrect declaration of weight, quantity or value to minimize duties.
Under-declaration of production volumes	Lower disclosure of production volumes mainly to avoid taxes.

Source: Adapted from European Union (2015)

The extent to which illicit trade thrives depends on multiple factors such as corruption levels, intensity of monitoring by authorities, and applicable penalties for the offences (Kieyah et al., 2014). All these factors are pertinent for Kenya. The use of TTS is therefore essential to increasing accountability and level of monitoring products along the supply chain from production to final point of consumption.

Available estimates of illicit tobacco products' (particularly cigarette) market in Kenya come from market research companies or tobacco industry and significantly vary, ranging from 8.0 per cent to about 27.0 per cent as of 2012 (i.e. prior to introduction of EGMS) and independent peer reviewed estimate with clear methodology is generally lacking (Ross, 2017). Given such challenges, a better approach would therefore be use of indirect approach such as level of legal sales and tax collections considering policy interventions.

Based on a report by Ross (2017) in a study that evaluates the effectiveness of various measures to control the size of illicit trade in Kenya, initial findings suggest that the EGMS has yielded positive results in terms of enhancing excise tax and restricting illicit trade in qualifying excisable products (Ross, 2017).

To examine the relative success of the system in tackling illicit trade, Figure 5.2 shows trends in cigarette real excise tax revenue, legal domestic production, and reported domestic consumption. The data indicates that the year on year increase in cigarette and cigars real excise tax revenue was 0.8 per cent in 2014 and 18.9 per cent in 2015. The increase in the 2015 real excise tax revenue is consistent with the large increase in the number of legally declared cigarettes and cigars of 21.3 per cent in 2014.

The relatively large increase in declared production in the year 2014 does not seem to be supported by changes in any observable fundamentals that may affect production such as Gross Domestic Product (GDP) and population growth (which remained relatively stable). It could be averred that the introduction of EGMS at the end of 2013 may have led to greater accountability in cigarette production volumes in 2014. It has been documented that under-declaration of cigarette production volumes is a common practice across the globe (European Union, 2015).

The estimated consumption of legally declared cigarettes and cigars increased by 56.1 per cent in 2014, which was followed by a drop of 4.6 per cent in 2015. The significant jump of 56.0 per cent in the estimated domestic consumption in 2014 may suggest substitution of illicit tobacco products with licit tobacco products. This may particularly hold given that overall domestic production (including products destined for exports) increased by less than domestic consumption, suggesting the pull factor may have principally come from domestic consumption. Other variables that may affect excise tax revenue, namely income and population have experienced stable growth, while smoking prevalence has generally declined, thus the increased tax revenue then can be attributed in part to the EGMS.

Figure 5.2: Trends in cigarette and cigars excise revenue (real values), annual average retail price of Sportsman brand, legal production of cigarettes and estimated consumption of cigarettes
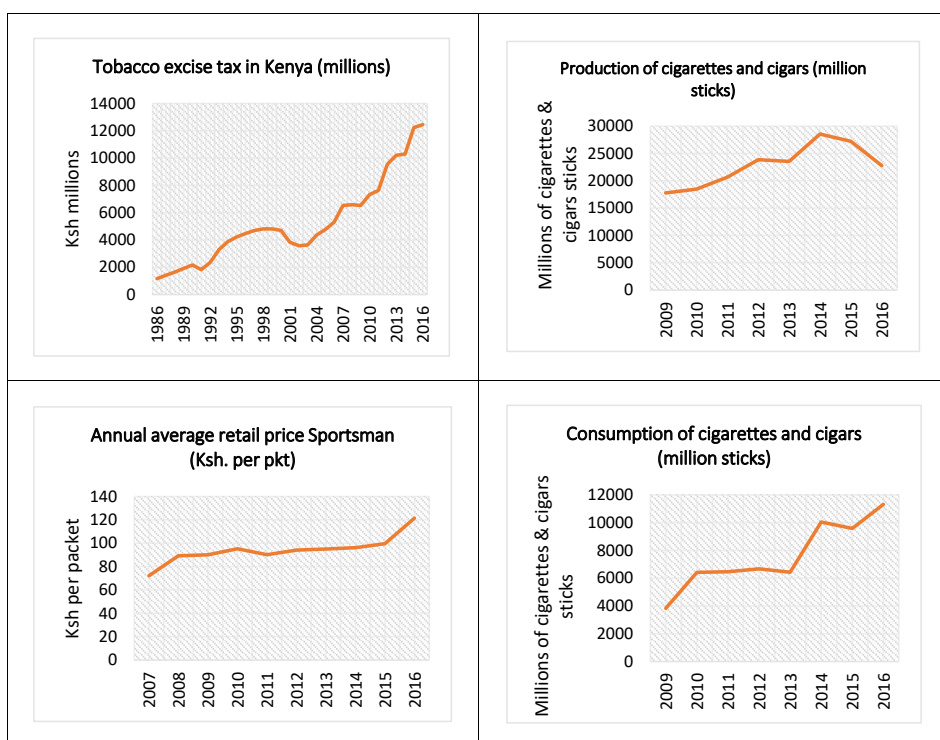
Data Source: KNBS (2017), Statistical Abstract and KRA

6.   Conclusion and Policy Implications

6.1   Conclusion

This study examined the issues surrounding the implementation of the Excise Goods Management System (EGMS) in Kenya with a focus on cigarettes and cigars. The study examined how the system has impacted on excise tax revenues for the two products, its implementation success and challenges, and its performance relative to other countries. Interrupted time series analysis was used to assess EGMS' impact on excise revenues. The study also benefitted from a review of other countries' experiences.

Regarding the effects on excise revenue, the focus was on level and trend changes. Based on an analysis of the real excise revenue single series for cigarettes and cigars, overall findings indicate that there was a pulse effect of the EGMS and a significant effect on the trend of the monthly real excise tax revenues. The results are indicative of a significant increase in real excise revenues for cigarettes and cigars in January 2014. This may be associated with intensified enforcement efforts and compliance immediately following the implementation of the EGMS. The tax revenue for the month of May also exhibits a spike. This is associated with intensified tax mobilization efforts before end of the financial years.

The findings indicate that the system has reduced the extent of possible under-declaration of production levels. Evidence of this is the large increase in the number of declared cigarettes and cigars, which grew by over 21.0 per cent in 2014, the year in which impact of the system was realized.

The EGMS seems to have had positive/desired impacts on illicit trade in cigarettes and cigars. This is attributed to its impacts on the observed increase in the declared production in the year 2014. The comparative review of the experience of Brazil and Turkey presents several lessons for Kenya that are highlighted as part of the recommendations.

6.2   Policy Recommendations

Based on the analysis and the conclusions drawn, the following recommendations are suggested:

i)   The EGMS needs to be complemented by intensified and sustained efforts to achieve maximum compliance levels over time, and avoid only short-term impacts. KRA in collaboration with other key institutions such as the Anti-Counterfeit Authority, Kenya Bureau of Standards and law enforcement agencies can leverage on the collaborative platform articulated in the National Action Plan and Implementation Framework to Combat Illicit Trade 2019-2022. An important initiative is to leverage on capabilities of EGMS and the immense opportunities articulated in this framework.

ii) The lessons from other jurisdictions to reduce illicit trade and enhance the effectiveness of the TTS include the need to:

iii) Enhance inter-agency collaborations, locally and across jurisdictions. These cooperative interventions should prioritize countries that are either the source or destination for products prone to illicit trade and include information sharing. This includes the East African Community region.

iv) Strengthen the gains from introduction of the TTS by use of more efficient prosecution systems supported by high penalties.

v) Use of a combination of overt (explicit) and covert (concealed) features to provide complementary features in detection of illicit products along the distribution chain.

vi) Continuously review the performance of the system focusing on its efficacy to deal with probable metamorphosis of illicit trade.

6.3 Areas for Future Research

For further policy insights, complementary research is needed to estimate the size of the illicit cigarette market in Kenya using rigorous methods. This will enable a more in-depth evaluation of the performance of the EGMS in combating illicit trade in tobacco products.

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Appendices

Appendix 1: Overview of the tobacco supply chain in Kenya

The scope of the tobacco supply chain in Kenya includes farmers, manufacturers, wholesalers, distributors, retailers and consumers. Tobacco constitutes about 0.2 per cent of total agricultural gross marketed production or 0.03 per cent of Kenya's GDP (Kenya National Bureau of Statistics, 2020a). Additional details of the supply chain are highlighted in Box A1.1.

Box A1.1: Tobacco supply chain in Kenya

Kenya had about 55,000 tobacco farmers in 2014, having increased from 35,000 in 1990 (Kibwage et al., 2014). These farmers are mainly situated in Migori and Homa Bay (31.0%), Meru and Tharaka Nithi (25.0%), and Bungoma and Busia (44.0%). In these counties, tobacco is a significant cash crop.

Most of the produce of the tobacco farmers is sold to the two licensed tobacco manufacturers operating in Kenya. These are the British American Tobacco (BAT) (Kenya), which is largely foreign owned, and Mastermind Tobacco (Kenya), which is a locally founded firm. Both firms operate as vertically integrated firms with involvement in activities ranging from growing of tobacco leaf to the sale and distribution of cigarettes. Both firms have entered into contractual engagements with local farmers. BAT has about 5,000 farmers across the country concentrated in the Western and Central regions of Kenya encompassing Migori, Bungoma and Meru counties.

Within the formal manufacturing sector, there are over 1,400 persons employed – mainly within the two large companies (Kenya National Bureau of Statistics, 2020b). Located in Nairobi, BAT (Kenya) has about 450 full time employees. Its main cigarette brands are Dunhill, Rothmans, Embassy, Sportsman, SM, Safari, and Rooster. Mastermind Kenya employs over 300 full time employees and focuses on reaching or serving lower segments of the market including rural areas. Its most popular brands are Rocket, which is popular among low income households especially in rural areas, and Supermatch, its flagship product.

After their manufacture, the tobacco products are distributed to the retailers through a network of thousands of wholesalers. A significant amount of the manufactured tobacco products is exported to the neighbouring Eastern African countries including Uganda, Tanzania, South Sudan, Ethiopia, Burundi and Rwanda.

Besides the manufacturers, there are also about five registered importers of manufactured tobacco products (KRA, nd).[8] The quantum index of tobacco imports indicates a fluctuating performance in the five years leading to 2016. Relative to the 2011 imports, there was a 61.0 per cent decline in import volumes in 2015. Even so, as indicated in Table A1.1, the value of imports increased between 2010 and 2014 before declining thereafter. The large increases in 2011 and 2014 relative to 2010 and 2013, respectively, are noteworthy. The unit prices of imports declined in 2011 and 2014 and the latter price was one of the lowest levels in a

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8   The importers include: Bridge Motivation Travel Limited, Debenham and Fear Limited, Leaf Tobacco and Commodities (Kenya) Limited, 3. Healthy U 2000 Limited, Maxam Limited, Nakumatt Holdings, Nicentury (Kenya) Development Company Limited, Nestle Kenya Limited and Simba Mbili Limited.

decade (yet import values rose), suggesting a large increase in import volumes. Coincidentally, the 2011 increase coincided with the introduction of the electronic cargo tracking system (ECTS) introduced in 2010, which tracks goods, including cigarettes destined for export markets or those in transit while the 2014 increase in imports coincides with the introduction of the EGMS. It could be averred that the observed spikes in imports could be the result of larger import declarations by importers following the introduction of the tracking technologies.

Table A1.1: Value of cigarette imports into Kenya, 2005 to 2016

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
Cigarette import value (Ksh millions)	11.60	10.80	7.80	25.40	34.90	35.00	60.40	59.30	46.40
Per cent change in import value	-	(6.00)	(28.00)	227.00	37.00	0.00	73.00	(2.00)	(22.00)
Unit price of imports c.i.f (Ksh per kg)	1,893.00	2,674.00	3,448.00	2,662.00	3,293.00	2,425.00	2,043.00	2,838.00	2,430.00

Source: Kenya Revenue Authority (KRA) and KNBS (various), Statistical Abstract

With respect to exports, the quantities of domestic exports of manufactured tobacco products has been on a declining trend, having decreased consistently from 40,290 tonnes in 2011 to 15,961 tonnes in 2015. The values of exports of cigarettes also declined from Ksh 18,633 million to Ksh 15, 757 million in 2015. The declines in the values of cigarette exports were less drastic due to increases in the average prices of cigarettes (per kg) as indicated in Figure A1.1.

Figure A1.1: Quantities of domestic exports (tonnes), values of exports (Ksh million) and average prices of tobacco products prices of tobacco exports (Ksh per kg) for Kenya
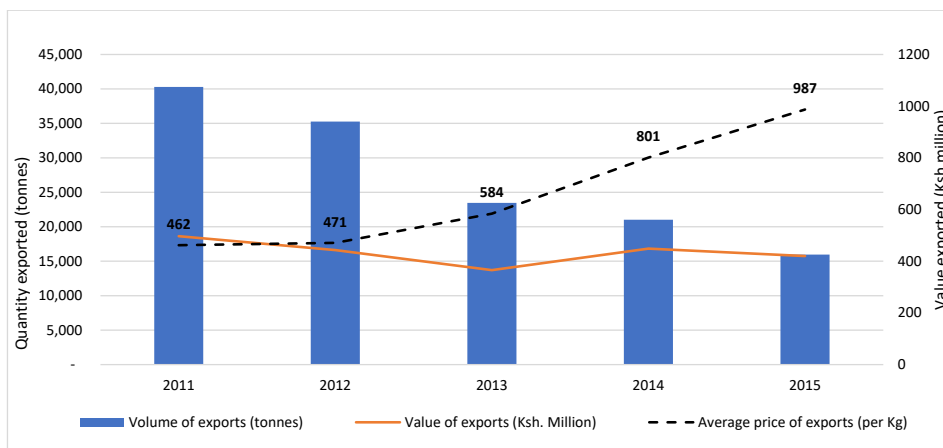
Source: Kenya National Bureau of Statistics (2017)

Appendix 2: The evolution of excise tax in Kenya with a focus on tobacco products

Excise tax is a duty imposed on goods and services that are manufactured or imported. In Kenya, these goods are specified in the First Schedule of the Excise Duty Act No. 23 of 2015. The rates were previously provided for in the Fifth Schedule of the Customs and Excise Act Cap 472 of the laws of Kenya, which has since been repealed by the Excise Duty Act, No. 23 of 2015. Besides tobacco products, excise taxes are currently levied on both domestic production and imports of alcoholic beverages, petroleum products, motor vehicles, perfumes, mineral water, soft drinks and airtime, among other products, as detailed in the First Schedule of the Excise Duty Act No. 23 of 2015.

Box A2.1 highlights more information on excise taxes and the historical development of excise tax in Kenya.

Box A2.1: Excise tax in Kenya and its historical developments

Historically, excise taxes in Kenya were levied on domestic production of only four product groups, namely: cigarettes and tobacco; sugar; beer and spirits; and matches. In the late 1980s, the Government began to implement a tax modernization programme with a major objective of reforming the tax system through standardization and rationalization of tax structures. The major effort to reform excise taxation was undertaken in 1991 when fundamental changes were made to its structure. Excise taxes were extended to cover not only an additional range of domestic goods, such as wines and carbonated soft drinks, but also imported goods. Several excise rates were also converted from specific to *ad valorem* basis. Cigarettes, tobacco, and matches were also made subject to the valued added tax (VAT) at the standard rate of 18.0 per cent in addition to excise tax. In 1994, the coverage of excise taxes was extended to mineral and aerated waters and petroleum products and to cosmetics in 1995. Petroleum products had been previously subject to VAT, but this was converted to an excise tax for revenue purposes. Matches were dropped from the list of excisable products in 1997.

Regarding excise on cigarettes, the amendments to the Customs and Excise Act, following the annual budget statement has often resulted to changes in cigarette tax structure. This has usually led to a complex tax structure that posed administration challenges (Kieyah et al., 2014). From 2008 to 2011, the criteria for excise tax were based on the physical characteristics of cigarette retail selling price. Besides the complexity of tax administration, there was also the challenge of consumer substitution of different cigarette brands. These challenges necessitated harmonization of the cigarette tax structure in 2012, whereby Ksh 1,200 per mille or 35.0 per cent of retail selling price was charged, whichever was higher (Kieyah et al., 2014).

In an effort to simplify the tax structure, the Excise Duty Act of 2015 introduced uniform specific rates of Ksh 2,500 per mille (Government of Kenya, 2015). This rate was implemented in December 2015 but in the following year the government reverted to tiered specific excise tax system, which was aimed at cushioning the economy brands and hence poorer households (Nargis et al., 2015). In a study that analyses cigarette tax policy changes in Kenya, Nargis et al (2015) noted that despite the relative simplification of the tax structure for cigarettes, it was observed that manufacturers had incentives under the new tax regime to under-declare cigarette brands that attract higher tax liability. Nargis et al (2015) advocates for a uniform specific excise, which is identified as a best practice in tobacco control and excise revenue maximization.


Excise duty contribution to total revenue was 18.5 per cent in 1995/96 and reduced consistently to 8.0 per cent in 2009/10. Excise duty contributed about 8.0 per cent of the total revenue collection by Kenya Revenue Authority (KRA) in 2016. In terms of its contribution to GDP, excise duty was about 24.0 per cent of GDP in 1995/96 and this dropped to 3 per cent of GDP in 2008/9.

Excise duty from cigarettes (which is the main tobacco product) averaged about 10.0 per cent of total excise duty collections by the government over the period 2014 to 2016. The contribution of cigarettes to total excise tax has generally declined even as the total cigarette excise has been on an upward trend since its introduction in the mid-1980s (Figure A2.1).

The consistent decline in the share of cigarette excise revenue can be attributed partly to the expansion of the excise tax net to include a wider variety of products. The more recent decline, however, may be partly attributed to a number of factors, including: relatively higher growth in other sectors/industries such as beer and services sector; and initiatives to discourage cigarette consumption. The initiatives that could have impacted on consumption include: a 50.0 per cent excise tax increase in 2015 and other tobacco control initiatives, including the earlier ban in advertisements and anti-smoking campaigns.[9] Cigarette excise tax share in GDP declined from 0.2 per cent in 2012 to 0.1 per cent in 2016 (Kenya National Bureau of Statistics, 2017).

Available data from WHO (2015) on prevalence of tobacco use indicate a consistent decline in prevalence rates in the period leading to 2015 (Figure A2.1). Computations of the estimated consumption of cigarettes per capita based on data from the annual Economic Survey (Kenya National Bureau of Statistics, 2017) indicate that consumption per capita was highest in 2016 relative to its seven preceding years.

Figure A2.1: Current tobacco smoking (actual and projected prevalence) 2000-2025 (%)
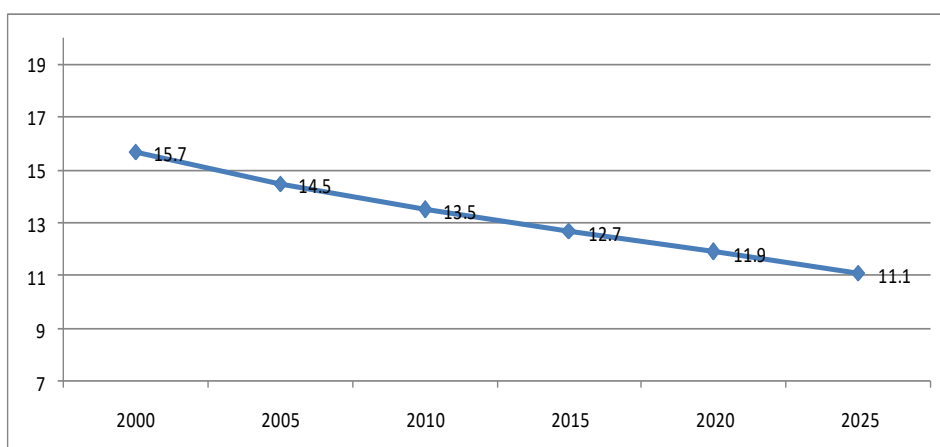
Source: WHO (2015)

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9 Industry players records indicate a possible shift to lower priced cigarettes as a result of prices increases following the tax increase (BAT, Kenya)

The excise rates for cigarettes and other tobacco products as of 2020 are presented in Table A2.1. In a study that analyses recent cigarette tax policy changes in Kenya, Nargis et al (2015) noted that despite the relative simplification of the tax structure for cigarettes, it was observed that manufacturers had incentives under the new tax regime to under-declare cigarette brands that attract higher tax liability.

Table A2.1: Tobacco products excise duty rates, 2020

Category of Cigarettes	Excise Duty
Cigarette with filters (Hinge lid and soft cap)	Ksh 3,157.0000 per mille
Cigarettes without filters (Plain cigarettes)	Ksh 2,272.0000 per mille
Cigars, cheroots, cigarillos containing tobacco or tobacco substitutes	Ksh 12,624.0000 per Kg
Electronic cigarettes	Ksh 3,787.0000 per unit
Cartridge for use in electronic cigarettes	Ksh 2,525.0000 per unit
Other manufactured tobacco and manufactured tobacco substitutes; "homogenous" and "reconstituted tobacco"; tobacco extracts and essences	Ksh 8,837.0000per Kg

Source: Government of Kenya (2015) – Revised edition, 2020

The analysis by Nargis et al (2015) notes that the tiered specific excise taxes on cigarettes are not effective for tobacco control as they would lead to higher levels of cigarette consumption and lowered revenue levels. Their analysis advocates for a uniform specific excise, which is identified as best practice in tobacco control and excise revenue maximization.

Appendix 3: Excise stamp fees and regulatory changes as per the 2017 EGMS regulations

The excise stamp fees for various products subject to EGMS are detailed in Table A3.1 while the changes effected by the 2017 Regulations (compared to the initial Regulations of 2013) are detailed in Table A3.2.

Table A3.1: Excise fees of products subject to EGMS as per the 2017 regulations

Category of Excisable Goods	Fees (Ksh) per stamp
Cigars, cheroots, cigarillos, containing tobacco or tobacco substitutes	2.8000
cigarettes containing tobacco or tobacco Substitutes	
Other manufactured tobacco and manufactured tobacco substitutes; "homogenous" and "reconstituted tobacco"; tobacco extracts and essences	
Wines including fortified wines, and other alcoholic beverages obtained by fermentation of fruits	2.8000

Compounded spirits of alcoholic strength exceeding 10.0 per cent	2.8000
Spirituous beverages of alcoholic strength not exceeding 10.0 per cent	1.5000
Beer, Cider, Perry, Mead, Opaque beer and mixtures of fermented beverages with non-alcoholic beverages	1.5000
Mineral water and aerated water of tariff no. 2201.10.00	0.5000
Fruit juices (including grape must), and vegetable juices unfermented and not containing added spirit, whether or not containing added sugar or other sweetening matter	0.6000
Sweetened or flavoured water and non-alcoholic beverages not including fruit or vegetable juices of tariff heading 2202	0.6000
Cosmetics and Beauty products of tariff heading Nos. 3303, 3304, 3305 and 3307	0.6000

Source: Government of Kenya (2017)

Table A3.2: Detailed changes brought by 2017 EGMS regulations

Regulation No.	Title	The Measure
Regulation 5, as detailed in the Schedule to the Regulation	Change in excise stamp fees	The pricing of excise stamps has been amended from a fixed price of Ksh 1.50 per stamp to different prices for different types of excisable goods.
Regulation 8(2)	Reduction of duration to apply for excise stamps	The period within which applications for excise stamps should be submitted to the Commissioner-General of KRA has been reduced from 90 days to 60 days prior to manufacture or importation of excisable goods.
Regulation 9	Provision of forecast on usage of excise stamps	Importers and manufacturers will be required to provide a month by month forecast of stamps they intend to use in the subsequent year. The period within which the forecast should be provided to the Commissioner-General of KRA has been reduced from 120 days to 60 days before manufacture or importation of the goods
Regulation 12 (1) (b)	Introduction of digital stamps	The Regulations have introduced the use of digital stamps by empowering the Commissioner-General of KRA to permit manufacturers to print digital stamps using indelible security ink.

Regulation 13(1)	Return of unused excise stamps	The circumstances under which unused excise stamps should be returned to the Commissioner-General of KRA have been amended to include cases where there is a discrepancy between declared and verified imported goods; and exclude cases where the importers fail to import.
Regulation 24, EGMS Regulations 2013	Repeal of the requirement to seal equipment and devices	The requirement for contractors to furnish the Commissioner-General of KRA and manufacturer with a list of pieces of equipment making up the EGMS system on conclusion of installation of a new production line has been revoked
Regulation 27(2)	Marking of products and packages supplied to the National Police Service (NPS)	The Regulations have introduced the requirement by manufactures/importers to mark the material wrapping packages for goods to be supplied to the NPS
Regulation 28(1)	Exemption from excise stamps	Goods manufactured to be supplied to the NPS have now been exempted from being affixed with excise stamps. Further, the Commissioner-General may require excisable goods exempted from excise stamps to have distinct markings.
Regulation 29(2)	Verification of stamps	The new Regulations have made it mandatory for persons engaged in distributing or retailing of excisable goods to: • Keep delivery notes, invoices or any other documents from the supplier of the excisable goods; and • Provide sufficient light for verification and authentication of the excise stamps;
Regulation 30 & 35	Offences	The penalty imposed on specific offences listed in the Regulations has been increased from a fine of (between Ksh 100,000 to Ksh 1,500,000) to a maximum fine of Ksh 5,000,000. Further, the general penalty on offences not specified in the Regulations is a maximum of Ksh 1,500,000 or imprisonment for a term not exceeding 3 years or both.
Regulation 31	Refusal to issue excise stamps	The Commissioner-General of KRA may decline to issue excise stamps where the applicant has not fully accounted or paid for excise stamps issued to them or failed to fully comply with the provisions of the Excise Duty Act in relation to filing of returns and payment of excise duty.

Regulation 5	Penalty on provision of false or misleading information	The new Regulations have introduced the imposition of fines provided for under the Excise Duty Act or any other law on manufacturers granted remission based on false or misleading information.

Source: Deloitte and Touche (2017)