



## THE IMPACT OF NON-TECHNICAL BARRIERS OF TRADE ON IMPORT FLOWS IN KENYA

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### Abstract

*Kenya Bureau of Standards (KEBS) in conjunction with Kenya Revenue Authority introduced Pre-Export Verification of Conformity (PVoC) programme as a pre-shipment inspection measure to ensure all goods imported or exported meet quality and safety standards requirements and traders are issued with a certificate of conformity (CoC). While PVoC was expected to be a trade facilitator rather than a barrier to trade, import volumes and values declined following its introduction. This study therefore sought to analyse the trend of import flows in pre- and post-PVoC periods and identify the factors underlying the observed trend. Two quasi-experimental techniques; regression discontinuity design and difference in differences approaches were used. The results shows that import values (CIF) declined by an average of Kshs. 1,838,895 while import taxes declined by an average of Kshs. 366,024 following the introduction of PVoC. The decline in imports not only affected products subjected to PVoC but also affected products exempted from PVoC. The introduction of PVoC coincided with a period of decline in credit to private sector, which began in Q4 of 2015 following a monetary policy contraction. If credit finance a substantial amount directly and indirectly through consumption of imports then the decline in credit might have partly contributed to the decline in imports. From the study, there is evidence of minimal movement of products across tariff bands following the introduction of PVoC.*

*Keywords: Kenya, Certificate of conformity (CoC), difference-in-differences (DiD), KEBS, Non Conformity Report (NCR), Pre-Export Verification of Conformity (PVoC), quasi-experimental techniques, regression discontinuity*

## INTRODUCTION

The Kenyan Bureau of Standards (KEBS), which is a statutory organization of the government of Kenya, is mandated for the implementation and the application of Standards for both imported and domestically manufactured products in the Kenyan market. Over the years KEBS has been undertaking conformity assessment of both domestically manufactured and imported goods as part of its mandate in execution and enforcement of Kenya standards through the Quality Assurance, and Import and Export Department. Conversely, verification of imported goods was previously restricted to post- shipment verification. This mode of verification not only led to delays at the port of entry, but also laid on KEBS a substantial obligation of confirming that all imported goods met the required standards and the substandard goods are re- exported or destroyed in an eco-friendly manner. To curb some of these problems, Pre- Export Verification of Conformity (PVoC) program to ensure that selected goods are verified for conformity to the relevant Kenya standards or approved equivalents before shipment to Kenya was introduced. The PVoC programme was introduced by Kenya Bureau of Standards (KEBS) through the publication of legal notice No. 78 of 15<sup>th</sup> July, 2005 by the then Minister for Trade and Industry in conjunction with Kenya Revenue Authority as a pre-shipment inspection measure to confirm all goods imported or exported meet certain requirements and traders are issued with a certificate of conformity (CoC). The legal notice has now been superseded by the Legal Notice No. 127 of 19<sup>th</sup> June 2018.

The aim of the programme is to ensure safety and quality of imported goods as well as protecting Kenyan manufacturers from unfair competition.

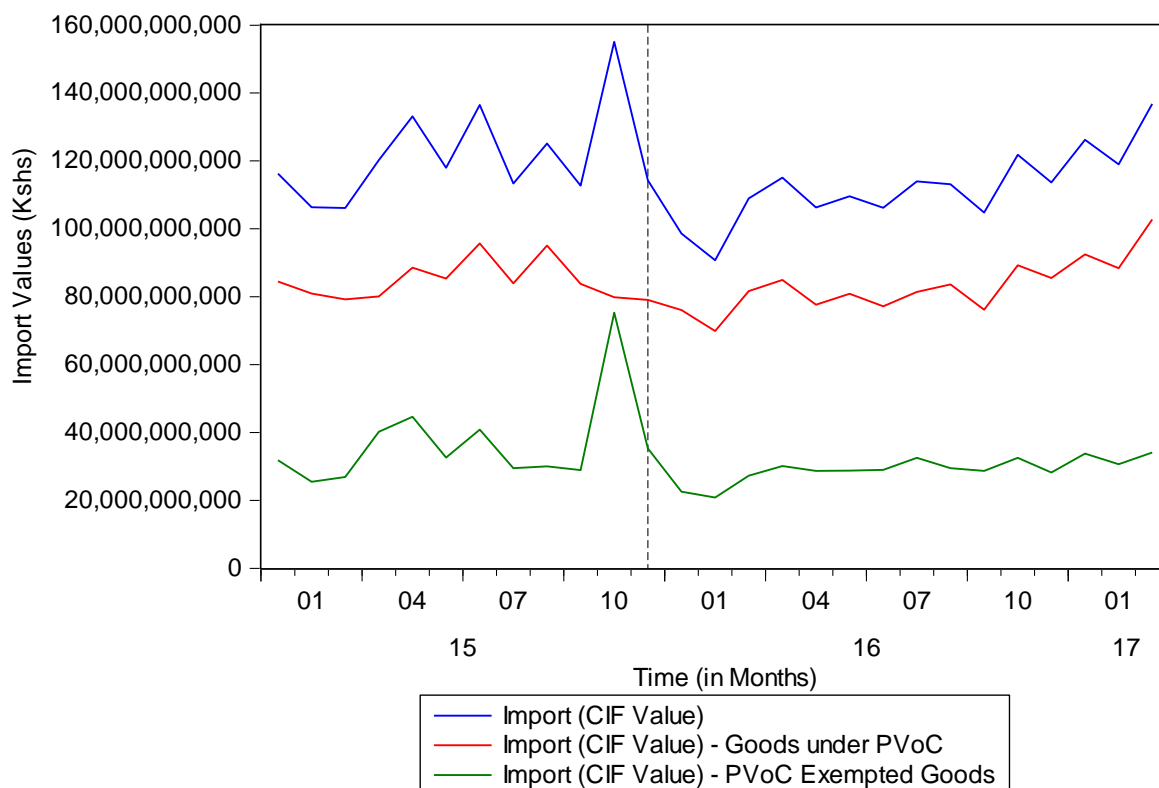
As of 1<sup>st</sup> December, 2015 KEBS further expanded the regulated products to include all products except for goods already regulated by other government agencies such as the Pharmacy and Poisons Board (PPB), Kenya Plant Health Inspectorate Services (KEPHIS), Pest Control and Products Board (PCPB), veterinary medicine directorate, central firearms bureau, fisheries department, mining geological department, the communications authority, Kenya civil aviation authority, Kenya maritime authority and radiation protection board. Other good also exempted include CKD for vehicles imported by registered manufacturers subject to proof of registration as assembler, primary inputs imported by registered manufacturers subject to proof that the materials are direct inputs to the manufacturing process and the finished products made out of the said raw materials are completely different products and are confirmed and certified by KEBS, manufacturing plants and industrial spares for own use imported by registered manufacturers, printed matter and copyrighted digital materials such as textbooks, magazines, diaries, labels, recorded digital media and magnetic media, products certified by KEBS under the Diamond Mark Scheme with a valid Diamond Mark permit, courier shipments through JKIA

(Airport) which are currently cleared under the Memorandum of Understanding (MoU) between KEBS and Courier Industry Association of Kenya (CIAK), diplomats and diplomatic mission, importers of goods manufactured within the EAC where import entries for goods are supposed to be processed by KRA based on the country of origin, importers of new vehicles which are supposed to be imported directly from the manufacturer of the brands or the manufacturer's appointed agent based on the year of manufacture, importers of used personal effects which must be pre-owned before shipment, importers of vehicles from countries where KEBS does not have motor vehicle inspection arrangement, general consumables imported by international carriers for inflight/ships services which requires a proof of existence as international carrier, re-imports which requires a re-importation certificate and lastly emergency spare parts for non-manufacturers following a break-down which requires approval/certificate of conformity or warranty from manufacturer (KEBS, 2015)

Key elements undertaken in the PVoC include physical inspection prior to shipment, sampling, testing and analysis in accredited laboratories, quality audit of production processes, documentary review of conformity with regulations and issuance of Certificate of Conformity (CoC) or Non Conformity Report (NCR) as appropriate. Therefore, all consignments which are subject to the Kenya PVoC must obtain a Certificate of Conformity (CoC) issued by any of the appointed and authorized PVoC agents for all products subject to the PVoC program. These agents are Messrs Bureau Veritas, Cotecna, China Certification and Inspection (Group) Inspection Co. Ltd, Intertek International Limited, Société Générale de Surveillance (SGS), and Quality Inspection Services Japan (QISJ) (GOK 2018)

The imposition of PVoC was expected to be a trade facilitator rather than a barrier to trade. However, import volumes and values declined following the introduction of PVoC as shown in Figure 1. The dotted vertical line represents the point when PVoC was introduced. The decline in imports not only affected products subjected to PVoC but also affected products exempted from PVoC. Negative effects of PVoC on goods not subjected to PVoC could have arisen if importers had no or inadequate information on PVoC compliance requirements for each imported goods. In this regards, PVoC is taken as a Technical Barrier to Trade, the argument is that Exporting firms' variable cost of production increases as they invest in new technology and inputs so as to improve their product quality to meet the new standards. Empirical analysis by Siyakiya (2017), Maskuset *al.*, (2005), Baoet *al.*, (2013), Chenet *al.*, (2008), Chevassus - Lozzaet *al.*, (2005), Essaji (2008) Czubalaet *al.*, (2009) and Portugal-Perez *et al.*, (2009) show that TBTs have a significant effect on trade flows and therefore effect on the tax revenue generated.

Figure 1: Trend in Imports (CIF Values) Over the Period Jan 2015 to March 2017



Source: Data Analysis Results (2018)

A clear review on trend of revenue statistics indicate that imports decreased by 9.7% after the introduction of PVoC. This period coincided with a period of contraction in credit to private sector which began in quarter four of 2015 following contractionary monetary policy. However, according to IMF this deceleration in credit growth is consistent with the regional trends (IMF, 2018).

Thus, it is not clear whether the decline in imports was a result of PVoC or it was driven by the deceleration in credit growth. Against this backdrop, this study seeks to analyze the trend of import flows in pre- and post-PVoC. It also seeks to reveal factors behind the decline in trade flows and challenges facing PVoC office in implementing the program.

This study therefore endeavored to investigate the change in import flows following the implementation of PVoC programme by addressing two specific objectives:

- i. To analyze the trend of import flows in pre- and post-PVoC periods
- ii. To identify the factors underlying the observed trend in (i) above

## LITERATURE REVIEW

### Theoretical Literature Review

The Implementation of the PVoC programme can be taken as a structural change in customs and boarder control (C&BC) policies. This assumption allows us to use quasi-experimental methods. To estimate its effect on revenue and trade volumes, difference in difference (DD) and Regression discontinuity approaches/theoretical models will be applied.

### Difference in Difference Theoretical Model

The association between policy changes and subsequent outcomes is often evaluated by pre-post assessments. Outcomes after implementation are compared with those before. This design is valid only if there are no underlying time-dependent trends in outcomes unrelated to the policy change. If outcomes were already improving before the policy, then using a pre-post study would lead to the erroneous conclusion that the policy was associated with better outcomes. The difference-in-differences study design addresses this problem by using a comparison group that is experiencing the same trends but is not exposed to the policy change. Outcomes after and before the policy are compared between the study group and the comparison group without the exposure (group A) and the study group with the exposure (group B), which allows the investigator to subtract out the background changes in outcomes. Two differences in outcomes are important: the difference after versus before the policy change in the group exposed to the policy ( $B_2 - B_1$ ), and the difference after versus before the date of the policy change in the unexposed group ( $A_2 - A_1$ ). The change in outcomes that are related to implementation of the policy beyond background trends can then be estimated from the difference-in-differences analysis as follows:  $(B_2 - B_1) - (A_2 - A_1)$  (Ryan *et al.*, 2014).

If there is no relationship between policy implementation and subsequent outcomes, then the difference-in-differences estimate is equal to zero. In contrast, if the policy is associated with beneficial changes, then the outcomes following implementation will improve to a greater extent in the exposed group. These estimates are derived from regression models rather than simple subtraction. Using regression modelling allows the estimates to be adjusted for other factors (eg, exchange rate, GDP, Distance between countries etc) that may differ between the groups. Regression models also offer a way to estimate the statistical significance of the association between policy change and outcomes, by including a variable that indicates if the observation is in the pre or post period and another variable that divides the groups into those exposed and unexposed to the policy. Statistically, the association between policy implementation and outcomes is estimated by examining the interaction between the pre-post

and exposed-unexposed variables. If the association exists this interaction term will be significantly different from zero (Angrist, 2008).

### **Regression Discontinuity Design for Evaluating the Effect of a Programme**

Since the late 1990s, a growing number of studies have relied on RD designs to estimate program effects in a wide variety of economic contexts. The Regression Discontinuity (RD) technique can be effectively applied in a situation where an individual's treatment depends upon an observable characteristic, where there is a known point at which the probability of treatment changes discontinuously. The idea is that in the neighbourhood of the discontinuity, treatment is effectively randomly assigned. It is for this reason that RD is sometimes referred to as a quasi-experimental design. The RD approach can be used to estimate the treatment effect of the various policy changes in two ways i.e. parametric approach which employs employing a treatment dummy taking a value of for the desired treatment.

Non-parametric techniques avoid the need for imposing a pre-determined structure on the data and allow the data flexibility to characterise its own shape. Such a technique presents a trade-off regarding the bandwidth to be used for smoothing: with an insufficient sample size a small bandwidth causes the local regression to suffer from noise that obscures the underlying function. Too large a bandwidth, on the other hand, can result in estimates of the underlying function being biased if observations at the extremes of the local regression are systematically different from those at its centre.

### **Empirical Literature on Policy Evaluation Using DD and RD**

Mulheirn& Mario (2006), estimated the labour supply effect of the working tax credit for childless households in the UK. The working Tax Credit programme was introduced in April 2003. This was the first time such a programme of in-work financial support for childless people had been attempted in the UK. The study exploited the age requirement of the policy, using a difference-in-difference approach, to analyze policy impact on labour supply, in terms of both participation and hours worked. A regression discontinuity analysis was conducted to analyse impact the policy around age 25 years, in the years prior to the introduction of the policy. Repetition of the analysis after the policy introduction showed that the discontinuity did disappear. From the study it was evident that a robust and significant 1.9 to 2.9 percentage point effect of the policy on the labour market participation amongst eligible groups exists.

Dechezlepretre et al (2016) did an inquisitive study to unveil whether tax incentives for research increase firm innovation. This was by a way of looking for evidence of a causal impact of research and development(R & D) tax incentives on innovation. The study exploited a change

in the asset-based size thresholds for eligibility for R & D tax subsidies and implemented a regression Discontinuity Design using administrative tax data on the population of UK firms. The study assumed absence of pre-policy manipulation of assets around the thresholds that would undermine the design. From the study, there is a statistical and significant effect of tax change on both R & D and patenting.

Kneller & McGoman (2013) studied the causal effect of upside progressivity in the income tax schedule, known as success taxes, on entrepreneurship in the UK. The study exploited sharp discontinuities in the convexity of taxation that a rise at government-specified thresholds in the income distribution. The study employed a regression discontinuity design to estimate an average treatment effect of taxation and did not find any evidence validates the argument that assignment to greater upside convexity around the top tax bracket affects transitions into self-employment.

**METHODOLOGY**

The study employed two quasi-experimental estimation techniques; Difference-in-differences technique (DiD) and Regression Discontinuity Design (RD).The target population comprised all products that Kenya imported from all source countries. The products were classified into two- and four-digits HS code and clustered into two i.e. those subjected to CoC and those not subjected to CoC.

**Empirical Model**

The study employed Regression discontinuity design and Difference-in-differences models. Regression discontinuity approach was employed to estimate treatment effects in non-experimental settings and provided causal estimates. In this approach, the size of the effects is measured as the size of the discontinuity in regression lines at the cut off. Discontinuity in the model suggests presence of a treatment effect in the model. Interaction of the assignment and interactive model is necessary for correct model specification. This was specified as follows;

$$Y_i = \beta_0 + \beta_1 Z_i + \beta_2 (X_i - X_c) + e_i \dots \dots \dots 3.1$$

Where, Y-is the outcome, Bo is the intercept, Z is the treatment dummy variable (1 0), X<sub>i</sub> is the assignment variable, X<sub>c</sub> is the cut off (to estimate the effects of treatment at the cut off, β<sub>2</sub> predicts outcome from the assignment, β<sub>1</sub> is the estimate of treatment effect and e is the random error term.

By Performing a local linear regression as suggested by Fan (1992) on each side of the pre and post period of PVoC programme it is possible to estimate the function Y in regression

equation above for the group of products exposed to PVoC programme and those not exposed to the programme. Given the changes in the policy environment upon the introduction of PVoC, it might be anticipated that the result will show a discontinuity between the two regression functions.

To establish the net effect of a policy in a situation where the outcomes were already improving or deteriorating (for instance due to CBK's monetary policy stance) before the policy, then using a pre-post study would lead to the erroneous conclusion that the policy was associated with better outcomes. Difference in difference methodology is used in overcoming this limitation. The same approach will therefore be employed to evaluate the impact of the PVoC programme on import volumes.

This technique exploits the start of PVoC programme to compare the outcomes of the target group (imports) before and after policy introduction. 'before-and-after' estimation assumes the counterfactual post-policy outcomes to be the same as for those observed before the start of PVoC programme. DiD uses a comparator group (imports exempt from PVoC programme) to do away with any macroeconomic effects. The technique will compare the before-and-after effects on the treated group with those for the untreated group. Assuming that the comparator group is a sufficiently close match, the remaining effect can be considered to be the impact of the policy alone on the imports subject to PVoC (treated group). If the comparator group is not close match it means that macroeconomic changes affect the treated and untreated groups differently.

The model is specified as follows

$$Y_{it} = \alpha + \gamma T_t + \delta A_i + \theta(T.A)_{it} + \epsilon_{it} \dots\dots\dots 3.2$$

Where;  $\gamma$  is Time Dummy,  $\theta$  is the DiD Estimator,  $\delta$  is the treatment dummy and  $\epsilon$  is the error term. The time dummy takes the value of zero for the period before the PVoC programme was introduced and 1 for the period after the introduction. The treatment dummy also takes the value of 1 if the product were exposed to the programme and zero if the product is not subject to the PVoC programme. However, the DiD model is based on the assumption that Macroeconomic fluctuations have the same effect on imports subjected to PVoC and those exempted from the PVoC programme. The simple OLS will be used in analyzing the data.

## RESULTS AND DISCUSSION

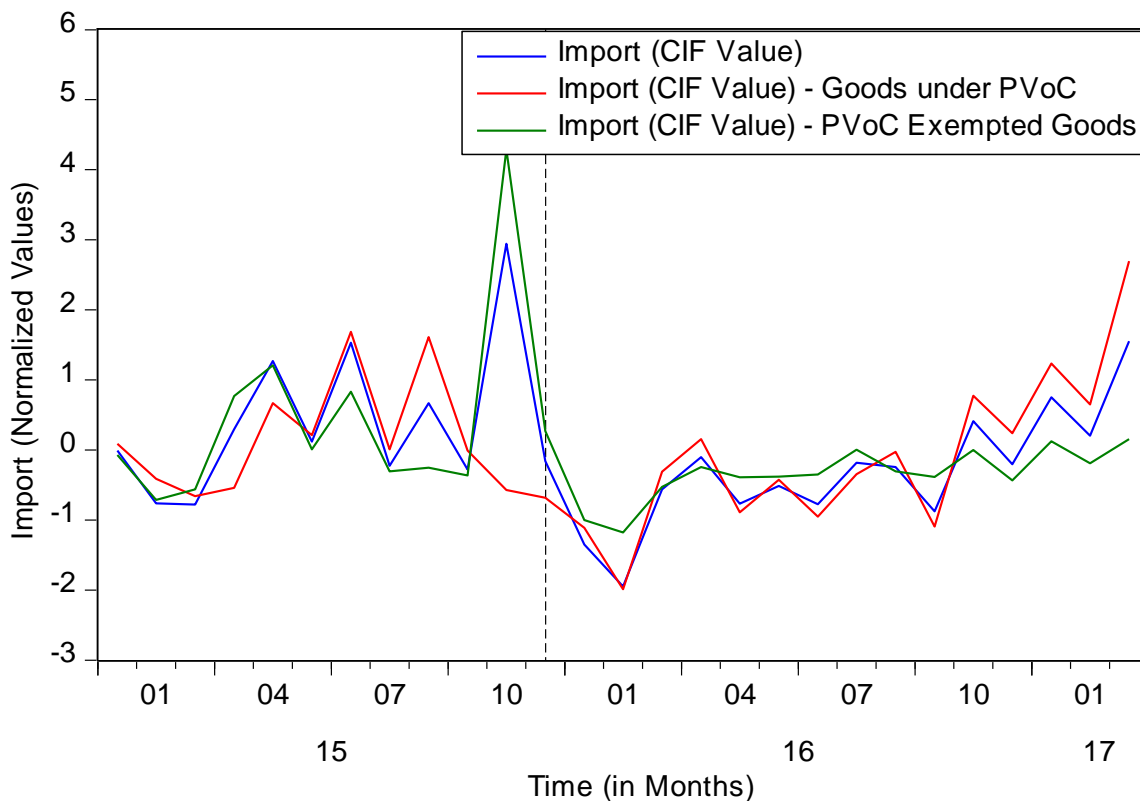
This section presents the results. The analysis was conducted for the following measures of imports and imports related revenues: import value (CIF), import volume (based on quantity), tax (defined as tax computed less tax remitted) and unit value (defined as the ratio of imports at



CIF value to quantity). Total imports were categorized into those subjected to PVoC and those exempted from PVoC requirement. KEBs PVoC manual was used to split the products into the two categories. Petroleum product was classified under goods exempted from PVoC requirement.

The study sought to discover why goods exempted from PVoC declined following the introduction of PVoC. To understand the reason for the decline in import flows following the introduction of PVoC, one needs to understand which group of products recorded the biggest decline, and secondly one needs to understand the seasonality of each of these groups of products. In this study, the former was achieved by plotting the normalized import flows and the latter was achieved by use of seasonal plots as shown in figure 2 and figure 3, respectively. Figure 2 plots the normalized values of imports while figure 3 presents seasonal plots of import values.

Figure 2: Trend of Normalized Import Values



Source: Data Analysis Results (2018)

Figure 3: Seasonal plots of import values

Figure 3a: Import (CIF Value) by Season

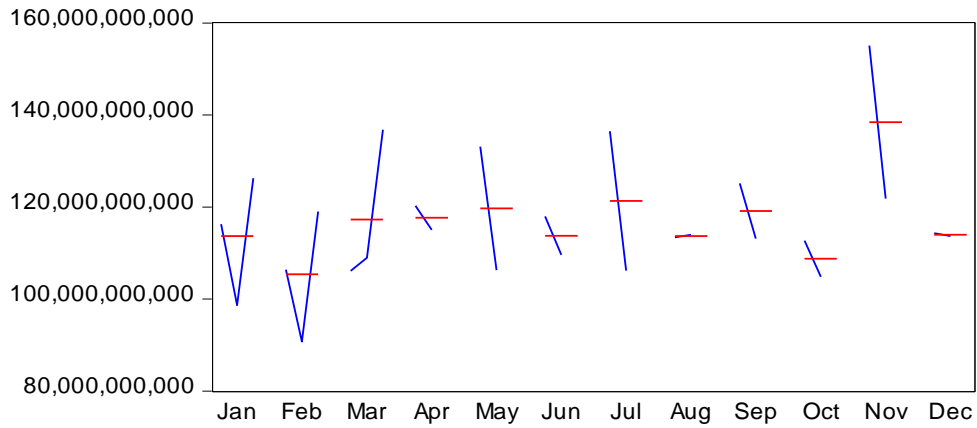


Figure 3b: Import (CIF Value) - Goods under PVoC by Season

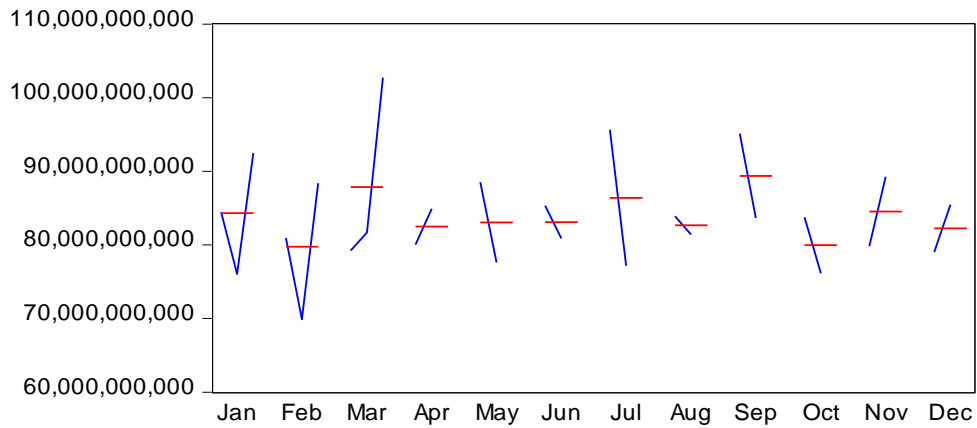
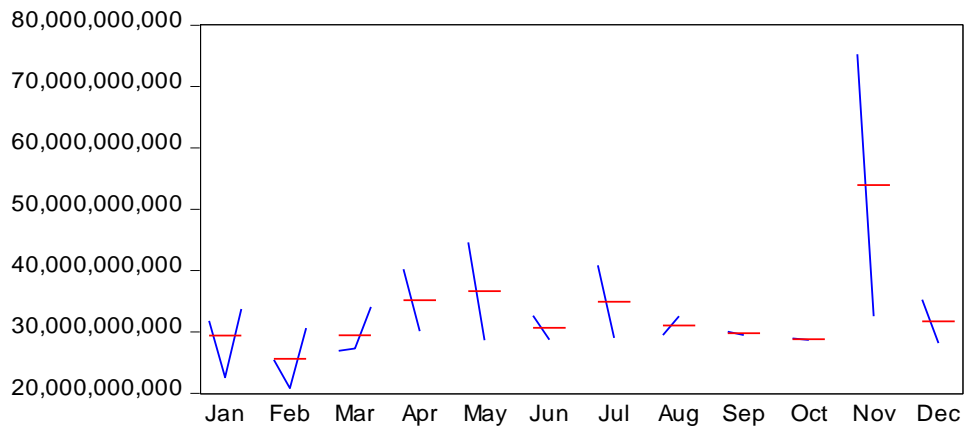


Figure 3c: Import (CIF Value) - PVoC Exempted Goods by Season



— Means bySeason

Source: Data Analysis Results (2018)

Normalization removes scale effects and thus making the values of various categories comparable. Using the normalized values of imports, it is clear that import values declined following the introduction of PVoC that is the trend after the dotted vertical line. This decline was driven by the decline in import values of goods subjected to PVoC. Although the magnitude of the decline of the import values for goods exempted from PVoC is big, the decline is a result of seasonality in this category. Figure 3c shows that the seasonal mean for November is high. In general, Figure 3 shows seasonal importation in the months of September, October, November, January and February. This is the case due to the similar trend for these months across the three years from 2015 to 2017.

The increase in imports in the period preceding the introduction of PVoC might have occurred as businesses stock imports in anticipation of the introduction of PVoC. This is more plausible if importers expected PVoC to be a constraint in the importation process. Thus, two key estimation issues emerged: in the period preceding the introduction of PVoC, businesses increased imports in anticipation of the introduction of PVoC and imports are seasonally high in November and seasonally low in February. November and February, respectively, precede and follow December – the month when PVoC was introduced.

### Regression Discontinuity Estimation Results

Regression discontinuity design analysis was carried out for all imports, goods under PVoC programme and goods exempted from PVoC requirements. The analysis was conducted with import values (CIF), import volume, tax and unit value as the outcome variables.

Figure 4: Regression discontinuity plot for total imports (CIF)

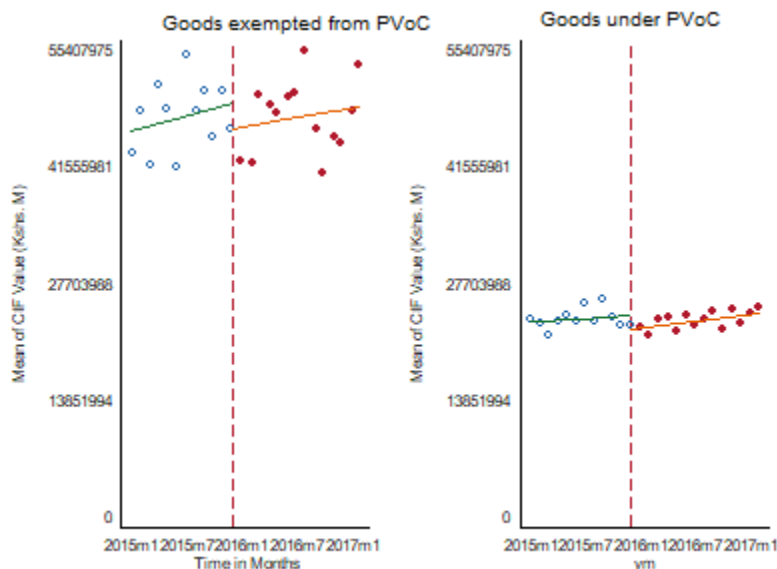
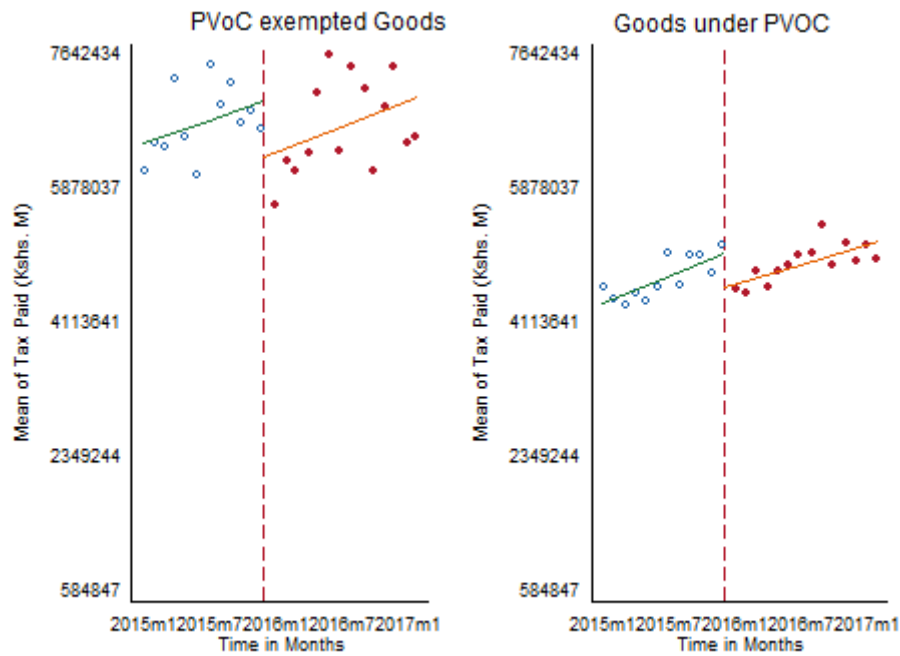


Figure 5: Regression discontinuity plot for total import taxes



Source: Data Analysis Results (2018)

Figure 6: Regression discontinuity plot for total import volumes

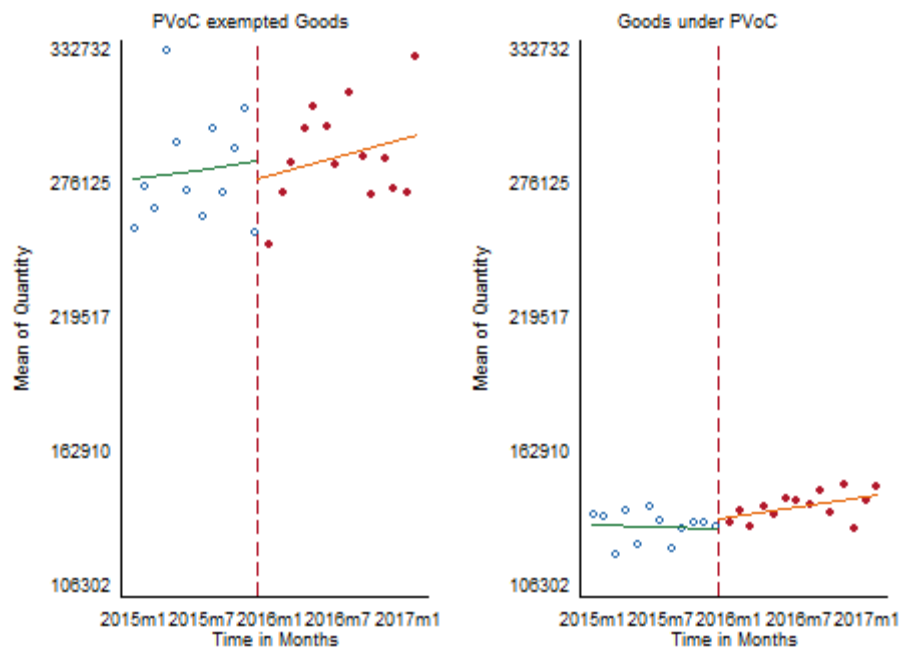
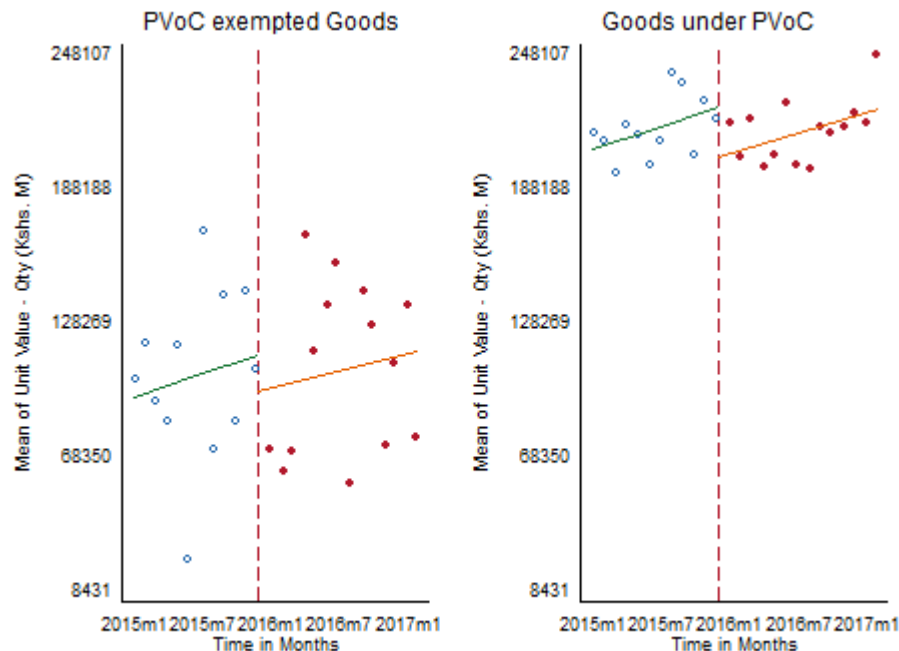


Figure 7: Regression discontinuity plot for unit import values



Source: Data Analysis Results (2018)

Hypothetically, if PVoC is (or is anticipated to be) a technical trade barrier then imports should decline only for goods that was brought under PVoC programme. On the other hand, there should be no decline for goods that was exempted from PVoC. The results, however, contradict this view. A closer look at Figure 4 reveals that the decline in imports is higher for goods exempted from PVoC requirements than for goods that was placed under PVoC programme. The higher decline for goods exempted from PVoC requirements could be partly due to seasonality and secondly due adjustments of stocks by businesses in anticipation of the introduction of PVoC. The decline in import taxes (Figure 5) and unit import values (Figure 7) seems to track the decline in import CIF values. The only exception is the import quantity as shown in Figure 6, which declined for goods exempted from PVoC requirement and increased slightly for goods that were put under PVoC requirements.

### Difference in Differences Estimation Results

Difference in differences analysis was applied to the four measures that is import values (CIF), import volume, tax and unit value. Table 1 presents the results for these four outcome variables.

Table 1: Difference in Differences Regression Results

	(1)	(2)	(3)	(4)
VARIABLES	Imports (CIF)	Tax	Quantity	Unit Value
Introduction of PVoC	-1,838,895** (0.044)	-366,024*** (0.007)	-3,304 (0.611)	1,032 (0.941)
PVoC Exemption Status	-5,359,103* (0.062)	921,761 (0.111)	20,766 (0.350)	91,067** (0.028)
Interaction Term	1,070,134 (0.259)	414,972*** (0.003)	8,209 (0.225)	3,414 (0.816)
Constant	24,243,744*** (0.000)	2,657,232*** (0.000)	84,501*** (0.000)	117,316*** (0.003)
Observations	82,137	82,137	82,137	82,137
Number of HS code	4,709	4,709	4,709	4,709

\*\*\* Significant at 1% \*\* significant at 5% and \* significant at 10%.

Values in parenthesis are the p-values.

Source: Data Analysis Results (2018)

Table 1 presents regression results for the four outcome variables. Column 2 presents the regression results for total import CIF values. The results show that the introduction of PVoC led to a decline in imports by an average of Kshs. 1,838,895. It also shows the mean of the goods subjected to PVoC (when PVoC Exemption Status=1) is lower than for goods exempted from PVoC (when PVoC Exemption Status=0) by about Kshs. 5,359,103.

Column 3 shows that the import taxes declined by an average of Kshs. 366,024 following the introduction of PVoC. The interaction term for tax equation is positive and implies that the decline in taxes were, on average, lower for goods subjected to PVoC by about Kshs. 414,972. The implication of this is that if the decline in imports were driven factors other than PVoC, then the introduction of PVoC resulted in efficiency gains in tax revenue collection. The introduction of PVoC had no effect on the import volumes (quantity) and the unit value as shown in the second last and last column, respectively. The mean unit value of goods subjected to PVoC is higher than for goods exempted from PVoC by about Kshs. 91,067.

Movement of products (at eight digits HS code level) across the duty rate bands was also examined using transition probabilities. In this case, the one-step transition probability is the probability of transitioning from one duty rate in the period PVoC to another duty rate in the period after PVoC implementation. To compute markov transition probabilities data was rectangularized. Markov transition probabilities for the movement of products across tariff bands are reported in Table 2.

Table 2: Markov Transition Probabilities for the Movement of Products Across Tariff Bands

		Final duty rates after PVoC Implementation								
	0	10	25	35	40	45	50	60	100	Total
0	99.89	0.02	0.09	0	0	0	0	0	0	100
10	0.01	99.92	0.06	0	0	0	0	0	0	100
25	0.07	0.06	99.87	0	0	0	0	0	0	100
35	0	0	0	99.99	0	0	0	0	0.01	100
40	0	0	0	0	100	0	0	0	0	100
45	0	0	0	0	0	100	0	0	0	100
50	0	0	0.24	0	0	0	99.76	0	0	100
60	0.67	0	1.35	0	0	0	0	97.98	0	100
100	0	0	0	0	0	0	0	0	100	100
Total	26.97	33.64	37.6	1.52	0	0.01	0.1	0.06	0.1	100

Source: Data Analysis Results (2018)

The transition probabilities metric in Table 2 indicate that over 97% of the products remained in the same tariff bands they were in before the implementation of PVoC. The few exceptions includes **0.02%** of the products that were in 0% tariff band moved to 10% tariff band and another **0.09%** moved from 0% tariff band to 25% tariff band, **0.01%** of the products that were in 10% tariff band moved to 0% tariff band and another **0.06%** moved from 10% tariff band to 25% tariff band, **0.07%** and **0.06%** of the products that were under 25% tariff band moved to 0% and 10% tariff bands respectively, **0.01%** of the products that were under 35% tariff band moved to 100% tariff bands, **0.24%** of the products that were under 50% tariff band moved to 25% tariff band and lastly **0.67%** and **1.35%** of the product that were under the 60% tariff band moved to 0% and 25% tariff bands, respectively.

It is important to note that some of these movements in tariff bands are not necessarily related to PVoC and might have arisen due to other policies such as annual tax measures. We did used any control for other policy changes.

## CONCLUSION AND RECOMMENDATIONS

PVoC programme was introduced by Kenya Bureau of Standards (KEBS) in conjunction with Kenya Revenue Authority as a pre-shipment inspection measure to ensure all goods imported or exported meet certain requirements and traders are issued with a certificate of conformity (CoC). The aim of the programme is to ensure safety and quality of imported goods. PVoC was expected to be a trade facilitator rather than a barrier to trade. However, import volumes and

values declined following the introduction of PVoC. It is not clear, however, whether the decline was as a result of PVoC programme or not as this period coincided with a period of contraction in credit to private sector which began in quarter four of 2015, which according to IMF is consistent with the regional deceleration in credit growth trends. Thus, this study sought to analyse the trend of import flows in pre- and post-PVoC periods and identify the factors underlying the observed trend.

To address the objectives of this study two quasi-experimental techniques; regression discontinuity design and difference in differences approaches were used. These techniques exploit the discontinuity (kinks) following a policy change to examine its effects. The results shows that import values (CIF) declined by an average of Kshs. 1,838,895 while import taxes declined by an average of Kshs. 366,024 following the introduction of PVoC. The decline in imports not only affected products subjected to PVoC but also affected products exempted from PVoC. Negative effects of PVoC on goods not subjected to PVoC could have arisen if importers had no access to information on the PVoC compliance requirements for each imported goods. Furthermore, the higher decline for goods exempted from PVoC requirements is partly due to seasonality. Imports are seasonally high in November and seasonally low in February. November and February, respectively, precede and follow December – the month when PVoC was introduced.

The effect of seasonality was augmented by expectations of businesses immediately before the introduction of PVoC resulting in a huge increase in imports in November 2015 relative to seasonal average for the month of November. These expectations were in the form of upward adjustments of stocks by businesses in anticipation of the introduction of PVoC. Lastly, the introduction of PVoC coincided with a period of decline in credit to private sector, which began in Q4 of 2015 following a monetary policy contraction. If credit finance a substantial amount directly and indirectly through consumption of imports then the decline in credit might have partly contributed to the decline in imports. There is evidence of minimal movement of products across tariff bands following the introduction of PVoC.

The study therefore recommends that

1. KRA to reduce procedural barriers that are required for instance in obtaining various documents that required before a product is imported into the country like the certificate of conformity (CoC)
2. Enforce 100% inspection and verification of all cargo that enters the country by KRA even for consolidated cargo. This should be done using advanced verification tools (non-intrusive technology-scanners), printers and cameras



3. Further, the government should handle its import and export licenses, so as to help promote economic performance. Analysis of the incidence of the trade-related impacts of non-technical measure(s) should be done extensively to ascertain who bears the costs and benefits such as small business versus medium-sized and large business, exporters versus import exchange firms and provide an evaluation of other available policy options, their incidence and how they could achieve an outcome of ensuring quality and safety standards of imported and exported commodities that is less restrictive to trade, whereas on the other hand upholding the same level of protection. Therefore due consideration should be given to the difference of the incidence of impact of a non-technical barrier to trade, depending on the various policy options.

At last, further studies can be undertaken in this area investigating the factors influencing trade flows in Kenya where PVoC will be taken as a dummy variable and Panel data estimated using gravity model

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