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**Trade Liberalization and Customs
Revenues: Does Trade Liberalization
Lead to Lower Customs Revenues?
The Case of Kenya**

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ABSTRACT

Kenya implemented a phased trade liberalization program starting in 1987. After an initial replacement of quotas with tariffs, tariff rates were systematically rationalized and reduced during the 1990s. Interestingly, between the early 1990s and the mid-1990s, the average import duty rate was approximately halved, but the revenue yield about doubled. The major shift in trade and customs collections occurred over 1993 and 1994 when import licensing and foreign exchange controls were removed, and a comprehensive pre-shipment inspection program was implemented along with other customs management reforms. This study uses detailed customs data from 1989 to 1999 to analyze the factors that contributed to the change in customs revenue yield. It investigates the impacts on revenue yields from year to year of: (i) trade volumes; (ii) import duty exemption policy and administration; (iii) the number of items classified as duty free; (iv) average import duty rates; (v) special duty rate regimes for oil and major agricultural products; and (vi) shifts in the composition of imports and exemptions between different import duty rate groups as the relative gross-of-duty prices of imports changed. To investigate the effects of changes in customs administration and importer compliance, the changes in revenue yield are predicted from base periods in terms of changes in trade, exemptions, and import duty rates. The residual unexplained increases in revenue yield are correlated with changes in trade and administrative policy, including the introduction of pre-shipment and secondary destination inspection programs and other customs control programs. This analysis shows that improved administration and compliance raised import duties from at least one-third to over two-thirds higher than could be explained by changes in trade, exemptions and import duty rates.

Keywords: trade liberalization, import tariff rate reductions, customs revenues, customs reform, Kenya, pre-shipment inspection, customs administration

JEL codes: E62, F13, H26, O23

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TRADE LIBERALIZATION AND CUSTOMS REVENUES: Does trade liberalization lead to lower customs revenues? The case of Kenya¹

1. Introduction

Developing countries typically raise more than two-thirds of their tax revenues from indirect taxes of which about half are collected through import duties.² Hence, the loss of customs revenues from trade liberalization is often seen as a major stumbling block to trade liberalization, particularly where it implies a reduction in the average tariff rate on imports. The standard remedy is to recommend the imposition of consumption taxes or raising the rates of existing consumption taxes, such as a VAT. This paper shows that customs revenue substitution by consumption taxes may not be necessary, at least at early stages of trade liberalization. Within many customs systems there is major potential for increasing revenues that, under certain circumstances, can even lead to increases in revenue yields as import duty rates are lowered on average. This has certainly been the experience in Kenya.

The case of Kenya is examined in this paper over the period 1989 to 1999, during which trade liberalization was being implemented. Liberalization accelerated during 1993/94 in the middle of this period. Over the initial years of 1989/90-93/94, the simple average import duty rate³ was 40% and the trade weighted average duty rate⁴ was 24% and these rates yielded on average import duty revenues of only 2.9% of GDP. Over the later years, 1994/95-98/99, by contrast, the simple average import duty rate (SADR) was 20% and the trade weighted average duty rate (TWADR) was 17%, but the average import duty revenues were 4% of GDP. The lowest revenue yield was experienced in 1991/92 at 2.1% of GDP when the SADR was 38% and the TWADR was 21%. The lowest duty rates prevailed in 1997/98 with the SADR at 17% and the TWADR at 15%, but the revenue yield from import duties was 3.7% of GDP. From this data it is clear that the lower average duty rates on imports are not necessarily correlated with lower revenue yields.

Import duty yields can be influenced by a wide range of factors. For instance, trade liberalization can increase the volume of international trade such the base expansion may exceed the rate reduction, and hence, yield higher revenues. Import tariffs can also have complex

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² See for example, Vito Tanzi, *Public Finance in Developing Countries*, Vermont, USA: Edward Elgar (1991), Chap 14.

³ Average of all *ad valorem* tariffs in customs tariff schedule. Tariffs are weighed by number of tariff items recognized in tariff schedule.

⁴ The trade weights used are the home-use imports in 1996/97. For import categories with *ad valorem* rates, the duty rates are used, but for categories with specific duties the effective duty rate on such imports that paid duty were charged.

structures. Lower average duty rates are not necessarily achieved by across the board rate reductions – high duty rates may be lowered, while low duty rates may be raised. This will not only increase the yield in the low-rate categories, it will also shift import consumption towards higher demand for the high-rate categories. The structure of exemptions can be changed to broaden the dutiable base. In addition, a wide range of administrative measures can be taken to improve enforcement and compliance that can lower smuggling and increase declared customs values. For example pre-shipment inspection or post-shipment secondary inspection programs can be instituted to improve valuation and other aspects of compliance. Lower duty rates in of themselves can encourage voluntary compliance by reducing the “benefits” of evading high duty rates. Obviously, as duty rates get ever lower and more uniform, a point has to be reached where the revenue yield will start to decline with lower average rates. For most developing countries, however, still with reasonably high duty rates, complex exemption and tariff rate structures, and relatively poor compliance and enforcement, this point of declining yield with declining rates may be yet a way off and can be avoided in the medium term.

This paper attempts to explore all these various avenues for increasing import duty yields while the average duty rate is lowered in the context of the Kenyan experience. The second section of the paper gives an overview of the Kenyan trade liberalization process and experience starting from 1987. The third section gives some relatively simple attempts to standardize the year-to-year revenue yield experience for changing duty rates, import volumes, and duty exemptions to reveal the unexplained extra yield from other factors. The fourth section shows an approach to disaggregating the revenue yield to further explore the contribution of different customs structures, administrative strategies and importer behavior. In this section, some of the major components subject to specific duties are separated out. In the fifth section, the large group of import items subject to *ad valorem* duty rates are decomposed further and the relationship to customs and other trade policy and administrative changes is further explored. The final section gives some summary and concluding remarks.

2. Trade liberalization in Kenya

Trade liberalization in Kenya started with a conversion of quantitative restrictions to tariffs equivalents in 1987-89. Initially, this raised the simple average tariff rate from 40% to 46 %. The government then embarked in 1990 on a phased tariff reduction (particularly in the high-rate bands) and rationalization of the tariff bands. By 1997/98, the simple average tariff rate had been reduced to 16.2% down from a high of 46.3%, and the trade weighted tariff rate to 12.8% , down from 25.6%. The number of tariff bands (including duty free) were reduced from 24 in 1987/88 to 15 in 1990/91, and further to 4 to 1997/98, and the top regular tariff rate from 170% to 100% to 25% over the same periods. The duty rates on most capital equipment came down to 5% from the 15% to 25% range, and most raw materials and intermediate inputs to the 5% to 15% range, down from 25% or higher. The single most significant change in the trade policy regime, however, came in May 1993 with the abolition of import licencing requirements and, more importantly, thereafter foreign exchange controls. Over 1993 and 1994, all current account and virtually all capital account restrictions were lifted. The impact was immediately evident in the trade flows; imports jumped by some 7% of GDP after averaging 24% from 1981 through 1992 to averaging over 30% of GDP during 1993-98, and exports surged by about 7% of GDP as

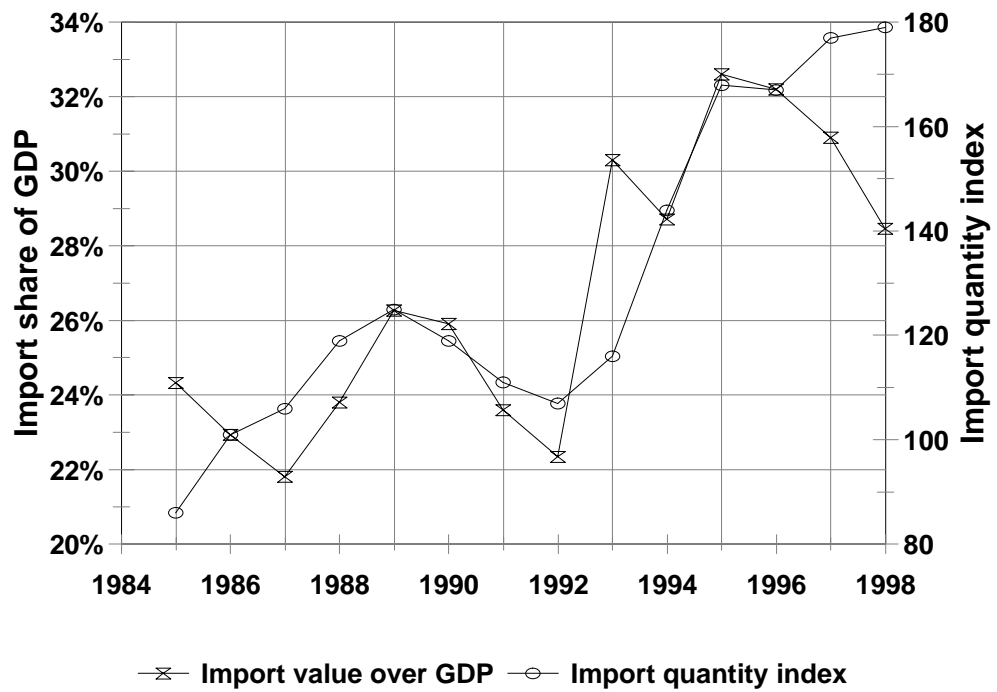
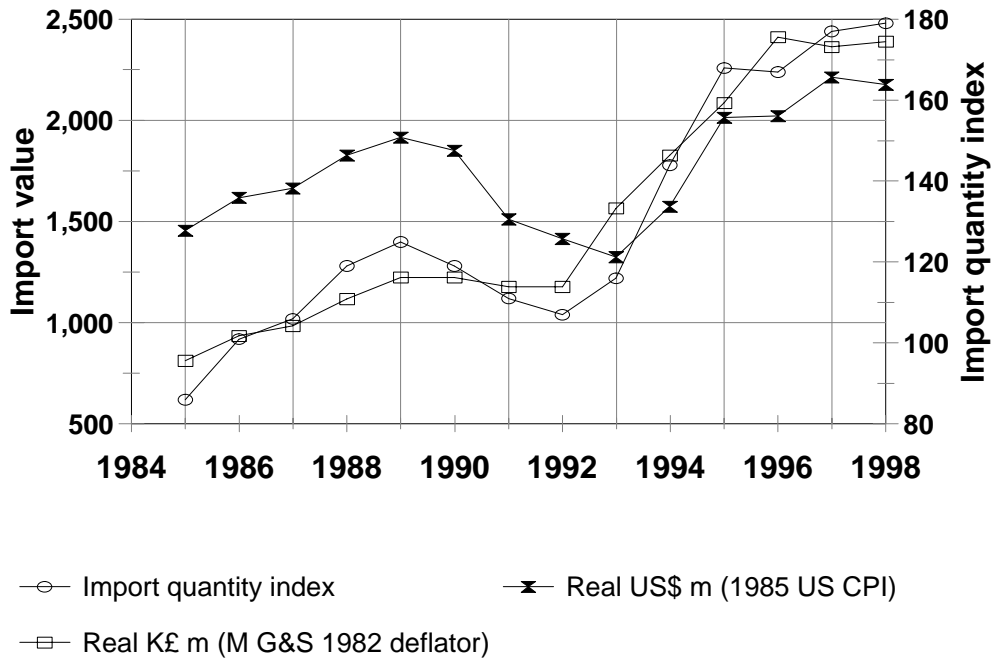
well. The majority (55 to 60%) of the growth in exports following the liberalization of the trade licensing and foreign exchange markets was in manufactured and processed goods destined for COMESA (Common Market of Eastern and Southern Africa) countries.⁵ Much of the increase in imports were raw materials and other intermediate inputs required in the production of these exports rather than a substitution for domestic production. Figure 1 illustrates the increase in imports into Kenya. Whether measured in terms of real US dollars, Kenya shillings, an import quantity index or as a share of GDP, imports after 1993 show a sharp increase and import levels reach a higher plateau after 1994. Comparing average imports over 1994-98 with 1989-93, the import quantity index increased by 44%, the real US dollar value of imports by 25%, the real shilling value by 74%, and the import share of GDP by 21%. The higher increase in the real shilling value of imports is explained in part by the strengthening of the real shilling exchange rate by over 16% on average in the later period compared to the earlier period.

The trade liberalization process was interrupted by the onset of a stabilization crisis in 1997, following the collapse of an IMF program, an election-spending-related budgetary crisis, and exchange rate instability accompanying the Asian crisis. Stability was restored by raising interest rates which in turn attracted short-term capital inflows that led to a substantial appreciation of the Kenya shilling throughout 1997 and 1998. The strong shilling opened domestic producers to severe import competition. This led to a range of suspended duties being imposed starting in mid-1997, raising the simple average tariff rising to 17.8% and the trade weighted average to 14% by mid-1999. Interest rates finally moderated in early 1999 leading to a sharp 12% real decline in the strength of the Kenya shilling, but the temporary protection has not been removed as of end-1999.

In summary, the liberalization of trade led to a marked increase in international trade, but despite major reductions in average duty rates, the customs duty revenue yields increased, particularly from 1994/95 onwards and remained high thereafter. This increased revenue yield demands explanation. Much of the analysis of customs performance will focus on the changes between the pre-1994/95 period and the period from 1994/95 onwards given a number of major trade policy changes were centered on the 1993-94. These include the major shifts in trade policy in 1993-94 (removal of import licensing and exchange controls), a significant cut in the average

⁵ See G. Glenday and D. Ndi, *Export Platforms in Kenya*, EAGER/Trade Regimes Research Paper, HIID, September 1999 (mimeo)

**Fig 1. IMPORTS into KENYA
1985-1998**



tariff rate in 1994/95, and the introduction of a new pre-shipment inspection program to support customs valuation and controls in May 1994.

3. Explaining Higher Customs Duty Yields

A range of customs policy structures and administrative strategies and practices can affect the customs revenue yield. These can be grouped into four categories:

- i. **Tariff rate structure effects** such as increased tariff rates (particularly on import categories otherwise duty free or subject to low duty rates) or reductions in legislated duty exemptions.
- ii. **Pure price incentives and changes in quantitative restrictions** such as (a) the lowering of average duty rates and other quantitative barriers that lead to increases total imports expanding the customs duty base; and (b) the relative lowering of high duty rates that results in a relative increase in consumption demand for high duty rate items or a decreased demand for smuggling or other customs fraud.
- iii. **Pure administrative effects** through tighter exemption management, or through enhanced administrative capacity, or through more effective internal or external customs control programs.
- iv. **Interactions between the above effects** where, for example, lower duty rates make it politically easier to restrict access to or remove exemptions, or make enforcement easier in that incentives to bribe are reduced, or where lower duty rates improve voluntary compliance, such as declaration of actual transaction values become less costly in tax terms.

Aside from the interactions between the effects, there are problems in distinguishing between some of the effects. For example, measured trade statistics largely depend on declared customs information. An increase in measured imports, for example, could merely be an increase in declared imports rather than an increase in actual domestic demand for imports. If a duty rate drops, do actual imports increase, or is it merely the declaration of imports that improves or both? In this respect, it also important to distinguish between the quantity of imports and the value or declared price of imports. Smuggling or the failure to declare a large quantity of imports is typically easier to detect, or more costly to engineer by the smuggler (except in small high value items such as jewelry, or computer chips or software) than it is to under declare the value of imports. Accordingly, as will be noted below, most of the enforcement efforts are focused on customs valuation to enhance revenue yields, although there is still much room for improvement in the control of cargo at the ports and the prevention of the diversion of transit and export goods into the domestic market.

In this section, an initial exploration of the impact of the increase in imports, and changes in the

tariff structure (as captured by the average duty rate and the share imports exempted) is made to ascertain whether these direct and observable effects explain the changes in customs revenue yields over the 1990s. Table 1 starts in Column A by giving the customs duty as a share of GDP for 1989/90 through 1998/99.⁶ When the revenues are standardized for the changes in the share of home-use imports (HUM)⁷ relative to GDP in Column B, the effective duty rate (EDR, or the ratio of duties collected to home use imports) given in Column C still shows a sharp increase from 1994/95 onwards to an average of 13.9% from 10.6%, or 31% higher in the latter period. Hence, the increase in imports from trade liberalization is not sufficient to explain the increased yield. This is more clearly the case considering average duty rates declined through the 1990s. Column D gives the simple average duty rate (SADR)⁸ which when applied to the HUM over GDP in Column B give a revenue yield estimate in Column (E) that, with the exception of 1993/94 would suggest declining revenue yields over time. If these yields are standardized on 1991/92 yields, which had the lowest actual yield of 2.1% of GDP, as shown in Column (F) and then compared to actual yields in (A), then Column (G) shows actual yields after 1994/95 being some 133% to 245% higher than projected.

Table 2 recognizes that not all home use imports are dutiable; a share of imports are exempted for various reasons. Column (H) gives the share of non-exempt or dutiable imports (including duty free imports) which is used to reduce the expected yield from applying the SADR as shown in Column (I). When this projected customs duty yield is standardized against 1991/92, still actual yields in 1994/95 onwards are some 130% to 221% higher than the projected yields.

Table 3 replaces the SADR with a trade weighted average duty rate (TWADR) for all imports subject to *ad valorem* duty rates as given in Column (L). The trade weights used are home use imports in 1996/97. This TWADR should give a better estimate of the actual EDR. In particular, the share of duty free and lower duty rate items in TWADR is higher than in the SADR; hence, the lower average duty rates for the TWADR compared to the SADR. Still the actual revenue yield in 1994/95 onwards exceed the actual projected yields by some 115% to 176% .

⁶ Customs duties include all duties arising from import tariff charges, but they exclude the revenues arising from the Import Declaration Form (IDF) fee. Since 1994 a 2% charge, raised to 2.75% in 1996, was raised to fund in part the pre-shipment inspection program. The excess collections accrue to ordinary revenues. These have yielded an extra 0.25% to 0.4% of GDP in revenues which when added to customs duties yields over 4% of GDP in all years since 1994/95.

⁷ “Home use imports” are dutiable imports. They are defined as all imports arriving in Kenya decreased by imports entering bond, but increased by imports withdrawn from bond.

⁸ The simple average duty rate (SADR) is the average of all *ad valorem* duty rates (including duty free) in the Kenyan 8-digit Harmonized System (HS) Code Tariff Schedule. The few items subject only to specific duties are omitted and alternative specific duty rates are ignored. The SADR is effectively “weighted” by the number HS Code items in each rate band. Given that relatively very few changes occur to the HS Code classifications from year to year, the SADR gives a reasonably good index of the reduction in the average import tariff rate over time.

Table 1. Customs duty collections standardized for changes in home-use imports relative to GDP and simple average duty rates

Fiscal year	Customs duty over GDP	Home-use imports over GDP (HUM/GDP)	Customs duty over Home-use imports	Simple average duty rate (SADR)	HUM/GDP times SADR	Projected Customs Duty over GDP based on 1991/92	Actual Customs Duty over Projected Duty
	(A)	(B)	(C) = (A) / (B)	(D)	(E) = (B) * (D)	(F)	(G) = (A) / (F)
89/90	3.3%	27.5%	12.0%	46.3%	12.7%	3.3%	100%
90/91	2.4%	25.3%	9.5%	44.3%	11.2%	2.9%	83%
91/92	2.1%	21.3%	9.8%	37.9%	8.1%	2.1%	100%
92/93	2.5%	25.4%	9.7%	35.5%	9.0%	2.3%	105%
93/94	3.8%	31.4%	12.0%	37.2%	11.7%	3.0%	132%
94/95	4.3%	27.3%	15.9%	26.4%	7.2%	1.9%	233%
95/96	4.3%	33.1%	13.0%	20.9%	6.9%	1.8%	241%
96/97	3.9%	31.1%	12.6%	19.0%	5.9%	1.5%	255%
97/98	3.7%	27.7%	13.3%	16.6%	4.6%	1.2%	309%
98/99	3.8%	25.6%	14.5%	16.8%	4.3%	1.1%	345%

Note: 1. (F) = (A) in 91/92 times [(E) in year over (E) in 91/92]
 2. Average duty rates in 1993/94 adjusted for 25% increase in rates introduced in September 1993.

Table 2. Customs duty collections standardized for changes in home-use imports relative to GDP, simple average duty rates, and duty exempt imports

Fiscal year	Non-exempt HUM over Total HUM	HUM/GDP times SADR times non-exempt import share	Projected Customs Duty over GDP based on 1991/92	Actual Customs Duty over Projected Customs Duty
	(H)	(I) = (E) * (H)	(J)	(K) = (A) / (J)
89/90	66.9%	8.5%	3.0%	108%
90/91	67.3%	7.5%	2.7%	89%
91/92	72.6%	5.9%	2.1%	100%
92/93	70.6%	6.4%	2.3%	108%
93/94	64.8%	7.6%	2.7%	148%
94/95	73.4%	5.3%	1.9%	230%
95/96	78.7%	5.4%	1.9%	222%
96/97	78.2%	4.6%	1.7%	237%
97/98	73.1%	3.4%	1.2%	307%
98/99	78.0%	3.4%	1.2%	321%

Table 3. Customs duty collections standardized for changes in home-use imports relative to GDP, trade weighted average duty rate on imports subject to *ad valorem* rates and duty exempt imports

Fiscal year	Trade weighted average duty rate	HUM/GDP times TWADR times non-exempt import share	Projected Customs Duty over GDP based on 1991/92	Actual Customs Duty over Projected Customs Duty
	(L)	(M) = (B) * (L) * (H)	(N)	(O) = (A) / (N)
89/90	30.8%	5.7%	3.0%	111%
90/91	28.8%	4.9%	2.6%	95%
91/92	25.8%	4.0%	2.1%	100%
92/93	25.4%	4.6%	2.4%	103%
93/94	26.1%	5.3%	2.8%	144%
94/95	19.3%	3.9%	2.0%	215%
95/96	15.3%	4.0%	2.1%	207%
96/97	13.5%	3.3%	1.7%	228%
97/98	12.6%	2.6%	1.3%	276%
98/99	12.8%	2.6%	1.3%	274%

Note: 1. Trade weighted average duty rate (TWADR) is estimated for all home use imports subject to *ad valorem* duty rates (typically 75% to 85% of imports excluding petroleum oil products and certain major agricultural imports, namely, wheat, sugar, rice, milk and maize.) Home-use import values in 1996/97 are used as weights.

2. Average duty rates in 1993/94 adjusted for 25% increase in rates introduced in September 1993.

Table 4. Customs duty collections standardized for changes in home-use imports relative to GDP, trade weighted average duty rate on all imports and duty exempt imports

Fiscal year	Trade weighted average duty rate (all imports)	HUM/GDP times TWADR times non-exempt import share	Projected Customs Duty over GDP based on 1991/92	Actual Customs Duty over Projected Customs Duty
	(P)	(Q) = (B) * (P) * (H)	(R)	(S) = (A) / (R)
89/90	26.3%	4.8%	3.1%	108%
90/91	24.2%	4.1%	2.6%	92%
91/92	21.3%	3.3%	2.1%	100%
92/93	23.6%	4.2%	2.7%	92%
93/94	25.3%	5.1%	3.3%	123%
94/95	20.7%	4.2%	2.6%	165%
95/96	16.8%	4.4%	2.8%	155%
96/97	15.2%	3.7%	2.3%	167%
97/98	14.7%	3.0%	1.9%	195%
98/99	16.9%	3.4%	2.1%	172%

Note: 1. Trade weighted average duty rate (TWADR) is estimated for all home use imports subject to *ad valorem* duty rates (typically 75% to 85% of imports excluding petroleum oil products and certain major agricultural imports, namely, wheat, sugar, rice, milk and maize.) Home-use import values in 1996/97 are used as weights.

2. Average duty rates in 1993/94 adjusted for 25% increase in rates introduced in September 1993.

Table 4 expands the TWADR to cover all categories of imports, including those subject to specific duties, by using the effective duty rates on the dutiable imports in these import categories (which include oil products and a range of major agricultural commodities, namely, wheat, sugar, rice, milk and maize.) With this more comprehensive and realistic measure of the average duty rate, and including the adjustment for exempt imports, while the excess actual over projected and standardized yield is substantially reduced, the actual yields after 1994/95 still exceed projected yields by some 65% to 95%. To explain the source of this “excess yield” which cannot be projected by changes in imports or changes in the objective rate and exemption structure, the following section decomposes imports and duty collections and brings to bear the changes in customs administration and price effects introduced by liberalization and the reduced and rationalized duty rate structure.

4. Source of customs revenue change: decomposing imports and customs duties

With tariff structures and exemptions changing over time, the mix of imports is expected to change. If the mix shifts towards imports with higher duty rates, then the effective duty rate will increase. This effect is expected as the maximum import duty rate was squeezed down over the period starting in 1987/88. The top schedular *ad valorem* rate was decreased from 170% down to 25% by 1997/98, though since then suspended duties have been used to raise the total import tariff rates on a selected range of items typically by 5 or 10 percentage points, but in some cases by higher amounts. In addition, changes in exemption policy could be targeted at specific import categories, or exemptions could be reduced in the high duty import items reflecting the declining value of exemptions as high duty rates are cut significantly. This would reduce demand for the exemptions and remove political pressures to sustain them.

Customs data and import grouping

To study these shifts in import shares, exemption behavior and effective duty rates across import categories requires time series data for the selected categories of imports to be able to observe changes in import shares and duty yield from these different import categories over time as customs structures and administration change over time. Accordingly, the computerized import records for Kenya from January 1990 through June 1999 have been recently reorganized so that import values, exemptions, duty and tax payments, and tariff and tax rates can be ascertained for selected groups of imports for each 6 month period. This type of data can help reveal the behavioral responses to changes in customs policy and administration. This paper reports on some initial results that have been ascertained from this data base.

This time series data on customs records allows a decomposition of the imports and duty collections within classes of imports. As an initial step imports are decomposed into four groups of imports, namely:

- i. Oil product imports (generally subject to specific duties only)
- ii. “Variable duty” imports (maize, milk powder, rice, sugar and wheat that were subject to a variable duty rate structure from 1992/93 to 1994/95, and to varying

- levels of suspended duty since then.)
- iii. Duty free imports
- iv. All other imports subject to *ad valorem* rates

Oil product imports (including petrol, diesel, kerosene, liquid petroleum gases, etc) are separated out for a number of reasons. First, they are a major import component, typically forming between 10% and 14% of home-use imports. Second, these items are subject to specific duty rates. Third, except for a small suspended duty imposed on direct imports of refined products, oil duties are charged on withdrawal from the bonded refinery and related tank farms. At this point, excise duties and other charges such as the road maintenance levy are also collected along with the import duties. Hence, import duties on petroleum products are effectively and economically indistinguishable from these other domestic consumption taxes. Changes in duties on oil products are somewhat arbitrarily split between import duties and excise duties. Hence, it is important to separate out oil duties from over import duties.

A group of major agricultural products (wheat, sugar, rice, milk powder and maize) are often referred to as the “variable duty” imports. From 1992/93 to 1994/95, they were subject to specific duty rates that were determined by the difference between a domestic reference price and an international reference price determined by reference to international commodity market prices and transportation costs. This policy was designed to deal with major down swings in international prices and export subsidies for these commodities and try to maintain domestic farm gate prices. Subsequently, “variable” suspended duties have been employed instead. Effective duties on these items have fluctuated over the years in response to world price swings, adverse domestic weather conditions, or demands for import protection by domestic producers during years of bumper local and/or world crops. Both import values and effective duty rates have been highly variable. Hence, these items are separated out.

The remaining 75% to 85% of import are subject to *ad valorem* duty rates. Some items are also subject to alternative minimum specific duty rates which are generally designed not to be effective unless the declared customs value drops below a minimum value and the specific duty becomes chargeable. This group also includes the items that are duty free in the regular tariff schedule. In Kenya these are limited to medical and pharmaceutical imports, aircraft and inputs into the agricultural sector (fertilizers, insecticides farm equipment, etc.) At this initial stage, duty free items are separated out from all other *ad valorem* duty rate items. In the next, stage of decomposition, the positive duty rate items are further decomposed.

Framework for decomposing customs collections

The following framework is used for decomposing import duties and imports. In the first step, the total duties for all customs collections (D) and overall effective duty rate (EDR) is decomposed. The relationship between the overall and component EDRs can be derived from the simple fact that the overall customs duty collection (D) is the sum of the collections on the component classes (i) of imports (D_i).

$$D = \sum D_i$$

If these are standardized against the total home-use imports (HUM) and the component duties

against their home-use import values (HUM_i), then the overall EDR can be expressed as the sum of the component shares times the EDR of the component as follows:

$$D/HUM = \sum (HUM_i / HUM) * (D_i / HUM_i)$$

or $EDR = \sum \alpha_i * EDR_i$ (X)

where $\alpha_i =$ share of home-use imports in component i,
 $EDR_i =$ effective duty rate of component i.

This information on the decomposition of the overall EDR can be used to identify the import components and years when they contributed to significant changes in the overall EDR. In terms of the above expression for the EDR, the year-to-year change (ΔEDR) can be expressed as:

$$\Delta EDR = \sum \Delta(\alpha_i * EDR_i) = \sum (\Delta \alpha_i * EDR_i + \alpha_i * \Delta EDR_i + \Delta \alpha_i * \Delta EDR_i)$$
 (Y)

The first expression for EDR gives the sum of the changes in the contribution of each component to the overall change in the EDR, while the second expression breaks out the changes in the shares ($\Delta \alpha_i$) and changes in EDR (ΔEDR_i) of each import component.

Expression (X) above for the overall EDR can be further decomposed to recognize that effects of import duty exemptions. If DPM is the value of duty-paid imports or non-exempt imports (including duty free imports), DR is defined as the effective duty rate relative to DPM, then EDR can be expressed as:

$$EDR = \sum (HUM_i / HUM) * (DPM_i / HUM_i) * (D_i / DPM_i) = \sum \alpha_i * \beta_i * DR_i$$
 (Z)

where $\beta_i =$ DPM_i / HUM_i , or the duty paid or non-exempt share of home-use imports of component i,
 $DR_i =$ D_i / DPM_i , or the effective duty rate relative to the duty-paid home-use value of imports of component i.

Note that this decomposition of EDR abstracts from the effect of the overall growth in imports on import revenues. To include overall import level effects, (X) or (Z) can be expanded to include changes in the share of total home-use imports relative to GDP (or HUM/GDP) and express the customs revenues as a yield relative to GDP (or $DY = D/GDP$), and hence, $DY = (HUM/GDP)*EDR$. Accordingly (X) and (Z) become:

$$DY = (HUM/GDP) \sum \alpha_i * EDR_i$$
 (X')

$$= (\text{HUM/GDP}) \sum \alpha_i * \beta_i * \text{DR}_i \quad (\text{Z}')$$

Decomposition of imports by component groups

Table 5 decomposes the EDR for all home-use imports in terms of the four groups of goods noted above in terms of (X), namely the shares and EDRs of each group for the years 1989/90 through 1998/99. Table 6 gives the contributions of each of the groups to the year-to-year changes in the overall EDR. Over this ten-year period, the overall EDR rises by 3.3 percentage points from an average of 10.6% over 1989/90-1993/94 to an average of 13.9% over the subsequent years.

The tables show that oil imports as remained fairly steady as a share of total home-use imports, fluctuating in the 10% to 14% range. The EDR on oil products show a marked increase in 1993/94 when a general rationalization of oil duty and tax structure took place. This contributed one percentage point to the increase overall EDR in 1993/94, but with fairly steady shares and EDR on oil products, duties on oil have had reasonably small impacts on changes in the overall EDR with the exception of 1998/99. An increase in the share and effective duty rate resulted in oil products contributing 1.1 percentage points to the overall EDR. Much of this increase in 1998/99 was due to a successful administrative campaign to control transit and export fraud in oil products, including the introduction of colored dyes for export products.

The tables show that the “variable duty” agricultural commodities are characterized by high variability in both the share of imports and the EDR, though the later does undergo a significant increase in 1994/95 and remains high in subsequent years. The fluctuations in imports reflect changing conditions in the domestic market due to weather and other conditions. Maize duties and import volumes also tend to move counter to each other: in drought or other emergency conditions, maize imports increase and duties are lowered; but when local crops are good, imports decline and duty rates are raised. The consistently higher EDR from 1994/95 onwards reflects (i) the effects of tariffs been used in place of quantitative restrictions to protect domestic farmers following the liberalization of trade and domestic agricultural markets; and (ii) the effects of international commodity price down swings exacerbated by a strong Kenya shilling. After a short, but severe bout of monetary instability in 1992-93, tight monetary policy and high interest rates in response to high government borrowing in the domestic markets, combined to attract short-term capital inflows that lead to a strong shilling, particularly in 1997 and 1998, that made Kenyan businesses increasingly uncompetitive in world markets. Increased duties were used to offset these adverse exchange rate and international price effects on Kenyan farmers and business.⁹ Duties on the “variable duty” agricultural commodities added 1.2 percentage points to

⁹ For further details, see Glenday and Ndi, *op cit*.

the overall EDR in 1994/95 and 0.6 percentage points in 1996/97. Outside of these increases, the variable duty commodities had limited impacts on the overall EDR.

Table 5: Decomposition of effective duty rate (EDR) for all home-use imports, 1989/90 to 1998/99

Fiscal year	Oil products		Variable duty commodities		Duty free goods	Other <i>ad valorem</i> duty rate goods		All imports
	Share of HUM	EDR	Share of HUM	EDR	Share of HUM	Share of HUM	EDR	EDR
1989/90	9.6%	10.0%	1.0%	4.1%	13.9%	75.5%	14.6%	12.0%
1990/91	13.3%	7.7%	4.4%	0.2%	17.1%	65.1%	13.0%	9.5%
1991/92	13.6%	7.9%	4.9%	0.2%	11.8%	69.8%	12.5%	9.8%
1992/93	12.6%	9.7%	8.8%	0.2%	11.3%	67.3%	12.5%	9.7%
1993/94	10.0%	21.9%	9.9%	0.2%	13.1%	67.0%	14.6%	12.0%
1994/95	9.6%	25.6%	6.3%	19.7%	10.6%	73.5%	16.6%	15.9%
1995/96	10.0%	20.0%	3.4%	20.9%	9.7%	76.8%	13.4%	13.0%
1996/97	12.3%	19.2%	8.5%	15.4%	11.4%	67.8%	13.2%	12.6%
1997/98	10.6%	20.5%	10.0%	15.6%	9.3%	70.1%	13.6%	13.3%
1998/99	13.9%	23.9%	2.9%	46.1%	9.1%	74.1%	13.2%	14.5%

Table 6. Contributions to year-to-year changes in effective duty rate (EDR) for all imports, 1989/90-1998/99

Fiscal years	Change in overall EDR (ΔEDR)	Oil products			Variable duty commodities			Duty free goods	Other <i>ad valorem</i> duty rate goods		
		Change in share	Change in EDR	Contrib. to ΔEDR	Change in share	Change in EDR	Contrib. to ΔEDR	Change in share	Change in share	Change in EDR	Contrib. to ΔEDR
89/90 to 90/91	-2.5%	3.7%	-2.3%	0.1%	3.4%	-3.9%	-0.0%	3.2%	-10.3%	-1.6%	-2.6%
90/91 to 91/92	0.3%	0.2%	0.2%	0.0%	0.4%	-0.0%	-0.0%	-5.3%	4.6%	-0.4%	0.3%
91/92 to 92/93	-0.1%	-1.0%	1.8%	0.2%	3.9%	-0.0%	0.0%	-0.5%	-2.4%	0.0%	-0.3%
92/93 to 93/94	2.3%	-2.6%	12.1%	1.0%	1.1%	0.0%	0.0%	1.8%	-0.3%	2.1%	1.4%
93/94 to 94/95	3.9%	-0.4%	3.8%	0.3%	-3.6%	19.5%	1.2%	-2.5%	6.5%	2.0%	2.4%
94/95 to 95/96	-2.9%	0.5%	-5.6%	-0.4%	-2.9%	1.2%	-0.5%	-0.9%	3.3%	-3.2%	-1.9%
95/96 to 96/97	-0.4%	2.3%	-0.8%	0.4%	5.1%	-5.5%	0.6%	1.7%	-9.1%	-0.2%	-1.4%
96/97 to 97/98	0.7%	-1.7%	1.3%	-0.2%	1.5%	0.3%	0.3%	-2.2%	2.3%	0.4%	0.6%
97/98 to 98/99	1.2%	3.3%	3.4%	1.1%	-7.0%	30.5%	-0.2%	-0.2%	4.0%	-0.4%	0.2%

Declines in the share of duty free goods imply that more other potentially dutiable items are

being imported and cause a corresponding increases in the overall EDR. The significant decline in the share of duty free goods by 5.3 percentage points in 1991/92 arises from the cuts in the range of duty free classes of goods in 1990 and 1991. A range of duty free items were eliminated from the tariff schedule by placing them in the 5% tariff band. By 1991/92, this reduced the number of duty free items by one half. This generally resulted in the share of duty free imports fluctuating in the 9% to 12% range thereafter. Major imports of duty-free items such as large aircraft were a significant cause of fluctuations in the share of duty free imports.

The tables show that the imports of all other goods subject to *ad valorem* duty rates reveal no major trends – import shares fluctuated in the 75% to 85% range and the EDR of this group with few exceptions remained in the 12% to 15% range. The relatively low fluctuations in the EDR are remarkable, however, given the strong declines in the average duty rate over the 1990s, whether measured as a simple or trade weighted average duty rate, as illustrated in Tables 1, 3 and 4 above. This group, however, did make significant contributions to the increase in the overall EDR in 1993/94 and 1994/95 by 1.4 and 2.4 percentage points, respectively. In the latter case, the EDR on this group of goods peaked in 1994/95 at 16.6%. A major contributory factor, to this increase was the introduction of the pre-shipment inspection program to assist with customs valuation and control. This is discussed further below. On average, comparing the 1989/90-93/94 period with the 1994/95-98/99 period shows the share of imports rose modestly from 68.9% to 72.5% of total home-use imports, and the EDR rose from 13.4% to 14%. These combine to account for only 0.9 percentage points of the total 3.3 percentage point increase in the overall EDR between these periods.

This seemingly modest contribution of the imports subject to *ad valorem* duty rates requires more in-depth analysis given the large size of imports and range of commodities and duty rates in this group and the significant reduction in the average duty rate and compression in the range of rates over the years. This is undertaken in the next section.

5. Decomposition of imports subject to *ad valorem* duty rates: effects of lowering high rates

As a first cut and to get a crude analysis of the effects of lowering and rationalizing duty rates on the imports subject to *ad valorem* duty rates, these imports are divided into four tariff rate groups: duty free, low, medium and high rates. This exercise makes use of two stylized facts of the duty rate reduction and rationalization process. First, few import categories changed their ranking as rates were reduced. High tariff rate bands were generally lowered and consolidated with the rate bands below them. Second, one dominant middle band existed with roughly 30% of imports (mainly industrial intermediate inputs.) Few categories of goods were removed or added to this tariff band, but this band itself was lowered over the period 1989/90 through 1995/96 from 30% to 15%. This tariff band has been used to split the imports (other than duty free) into low and high rate groups. The group membership of any import category was established according to its duty rate in 1996/97: “low” rates were any rate below 15% (except zero), the “middle” rate was 15%, and “high” rates any rate above 15%. As part of establishing the time series data for customs imports for 1990-99 discussed above, all import transactions other than oil products or “variable duty” rate commodities were placed into the free, low, medium and high duty rate classes such that the changing imports, duties, exemptions and duty

rates in these classes over time could be analyzed.

Table 7. Decomposition of home-use imports subject to ad valorem duty rates by duty rate classes showing shares of imports and duties, share of import paying duty, and effective and trade weighted average duty rates, 1989/90 to 1998/99

Fiscal Year	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99
Duty rate class										
Share of home-use imports (HUM) or α										
Free	17.4%	10.2%	11.7%	15.0%	17.4%	13.3%	12.0%	14.2%	14.0%	17.7%
Low	34.8%	30.5%	26.7%	30.2%	25.5%	29.7%	27.5%	24.9%	22.7%	19.7%
Medium	29.3%	38.9%	38.8%	37.5%	40.1%	35.5%	34.6%	31.9%	30.5%	34.5%
High	18.5%	20.4%	22.8%	17.2%	16.9%	21.5%	25.9%	29.0%	32.8%	28.1%
Share of duty-paid or non-exempt home-use imports (DPM)										
Low	46.0%	35.2%	37.9%	39.3%	35.1%	35.7%	33.1%	31.7%	29.8%	25.2%
Medium	35.1%	47.9%	47.1%	45.2%	48.3%	42.2%	40.1%	39.0%	37.5%	40.5%
High	19.0%	16.9%	15.0%	15.5%	16.5%	22.1%	26.8%	29.3%	32.6%	34.4%
Share of HUM paying duty (DPM over HUM) or β										
Low	62.1%	50.8%	76.1%	76.1%	68.7%	72.6%	81.7%	79.3%	80.5%	79.3%
Medium	56.4%	54.2%	65.3%	70.4%	60.1%	71.6%	78.7%	76.3%	75.3%	72.8%
High	48.1%	36.8%	35.3%	52.6%	48.9%	62.0%	70.4%	64.3%	60.5%	75.9%
Share of duty collections (D)										
Low	31.6%	36.4%	26.1%	28.6%	25.7%	22.7%	18.6%	10.3%	9.4%	7.2%
Medium	43.0%	38.1%	46.7%	46.1%	47.9%	38.7%	35.0%	34.6%	31.2%	30.6%
High	25.4%	25.5%	27.3%	25.4%	26.4%	38.6%	46.4%	55.1%	59.4%	62.2%
Effective Duty Rate (EDR)										
Low	11.3%	17.1%	11.9%	12.9%	13.6%	9.8%	7.7%	4.3%	4.2%	4.1%
Medium	18.2%	13.7%	14.6%	16.7%	16.0%	13.9%	11.6%	11.2%	10.4%	9.9%
High	17.0%	17.6%	14.5%	20.2%	21.1%	22.7%	20.5%	19.8%	18.6%	24.8%
Effective Duty Rate for duty paid imports (DR)										
Low	18.0%	34.5%	15.5%	17.0%	20.0%	13.0%	9.5%	5.5%	5.0%	5.0%
Medium	32.0%	25.0%	22.0%	23.5%	26.5%	19.5%	15.0%	15.0%	14.0%	14.0%
High	35.0%	48.0%	41.5%	38.5%	43.0%	37.0%	29.5%	31.0%	30.5%	33.0%
Trade weighted average duty rate including suspended duties (TWADR)										
Low	19.1%	16.5%	16.2%	17.6%	16.1%	13.9%	9.5%	5.0%	5.0%	5.0%
Medium	33.2%	28.8%	26.9%	26.8%	25.8%	20.1%	15.1%	15.0%	14.9%	12.6%
High	44.8%	46.5%	40.0%	46.2%	40.6%	39.0%	28.4%	31.0%	27.5%	39.6%

Tables 7 and 8 analyze the home-use imports, duties, exemptions and duty rates for the group of imports subject to ad valorem duty rates. Table 7 decomposes these results on an annual fiscal year basis for 1989/90 to 1998/99, while Table 8 summarizes these results by comparing the averages for the first 5 years through 1993/94 with the subsequent five starting in 1994/95. Generally the results in Table 7 show a significant shift or step-change between these two periods so that the focus is put on the summary comparative results between these periods in

Table 8.

First, the share of home-use imports in the high duty rate class increased significantly by 43% between the two 5-year periods, while shares in all the lower duty rate classes decreased by more modest degrees. Second, the share of home-use imports paying duty (or non-exempt) increased in all duty rate classes, but increased the most (by 50%) in the high duty rate class. These two effects combined to result in the share of duty-paying home use imports in the high-income group increase by 75%, and the share of import duty collections in the high duty rate class to increase by 101% such their duty yield rose to provide over 50% of the duties, while the shares of both the low and medium duty rate groups decreased. Similarly, the EDR in the high-income class increased by 17.8%, while the EDRs for the lower duty rate classes declined. Accordingly, it is clear that a remarkable shift occurred in the composition of imports towards those in the high duty rate class and in the customs compliance of these imports. While the EDR of all these goods subject to *ad valorem* rates increased by only 0.9 percentage points, the EDR in the high duty rate class rose by 3.2 percentage points. This increase in duties and EDR for the high income group class occurred while the actual duty rate in this class dropped by 22% (as measured by the effective duty rate on duty-paying imports, DR) or 24% as measured by the trade weighted average duty rate (TWADR.)¹⁰

A number of factors could explain the increase in the share of high duty rate imports (α) and the increased share of these imports paying duty (β) that led to an increased EDR despite the decline in the effective duty rate on duty paying imports (DR).

¹⁰ The trade weighted average duty rate used 1996/97 home-use imports as weights and included suspended duties in the import duty rates.

Table 8. Summary of decomposition of home-use imports subject to *ad valorem* duty rates by duty rate classes: comparison of 1989/90-1993/94 with 1994/95-98/99

Fiscal Years	1989/90 to 1993/94 (A)	1994/95 to 1998/99 (B)	Ratio (B)/(A)	Growth (B) over (A)
Duty rate class				
Share of home-use imports (HUM) or α				
Free	14.4%	14.2%	0.99	-0.8%
Low	29.6%	24.9%	0.84	-15.8%
Medium	36.9%	33.4%	0.90	-9.5%
High	19.2%	27.5%	1.43	43.3%
Share of duty-paid or non-exempt home-use imports (DPM)				
Low	38.7%	31.1%	0.80	-19.7%
Medium	44.7%	39.9%	0.89	-10.9%
High	16.6%	29.1%	1.75	75.4%
Share of HUM paying duty (DPM over HUM) or β				
Low	66.8%	78.7%	1.18	17.8%
Medium	61.3%	74.9%	1.22	22.3%
High	44.3%	66.6%	1.50	50.2%
Share of duty collections (D)				
Low	29.7%	13.6%	0.46	-54.0%
Medium	44.3%	34.0%	0.77	-23.2%
High	26.0%	52.3%	2.01	101.4%
Effective Duty Rate (EDR)				
Low	13.3%	6.0%	0.45	-54.9%
Medium	15.9%	11.4%	0.72	-28.2%
High	18.1%	21.3%	1.18	17.8%
Effective Duty Rate for duty paid imports (DR)				
Low	21.0%	7.6%	0.36	-63.8%
Medium	25.8%	15.5%	0.60	-39.9%
High	41.2%	32.2%	0.78	-21.8%
Trade weighted average duty rate including suspended duties (TWADR)				
Low	17.1%	7.7%	0.45	-55.1%
Medium	28.3%	15.5%	0.55	-45.1%
High	43.6%	33.1%	0.76	-24.1%

Reforms in customs exemption policy

First, there has been a systematic policy that has reduced the access to duty exemptions. A series of cuts in and restrictions on import duty exemptions started in 1991. Most important was in 1992, when the Customs and Excise Act was amended to remove the general discretionary

powers of the Minister to award duty exemptions. Only exemptions specifically provided for in legislation could be approved. In addition, rather than allow full exemptions, many were restricted to a minimum duty rate of 10%, which was only lowered in 1999 to 5% following the general reduction in duty rates over the 1990s. Starting in 1994, a gradual tightening of access of non-governmental organizations (NGOs) to duty exempt charitable donations were introduced including establishing a negative list of items and requiring all NGOs to register under the Income Tax Act and the Kenya Revenue Authority to scrutinize all requests before they are reviewed by the Ministry of Finance. A blanket restriction was placed on duty exemptions for agricultural commodities unless a national disaster is officially declared or the commodities are for officially sanctioned refugee support. Computerized systems for control of exemption awarded are being installed and in the case of aid-funded projects, post project reconciliation of exemptions is being introduced.

This ongoing program of tightening exemption policy and administration has arguably been assisted by the systematic lowering of duty rates. It is both politically easier to remove legislated exemptions as their relative duty value declines, and it is easier for customs administration to enforce exemption limits when the exemption value is lower thereby reducing the gains from customs fraud and the willingness of importers to offer bribes to capture these gains.

Price effects of tariff reductions on imports

Other price effects can contribute to the explanation of the shift in imports to the high duty rate class. While the trade weighted average duty rate (TWADR) in the low and middle rate duty rate class dropped 55% and 45%, respectively, the TWADR only dropped by 24% in the high duty rate class, in term of gross of duty prices, these all represent about an 8% drop in domestic market prices of imports. Many of the goods in the high rate class, however, would have experienced larger price cuts. First, imports starting from the highest tariff bands would have experienced the highest relative price cuts. For example, if the import duty rate dropped from 80% to 35%, then the price cut would have been 25%. Second, the prices of high-duty-rate imports, most likely dropped by more than the drop in their duty rates. Most of the goods in the high-rate class were in the most restrictive import licensing schedule, and hence, despite “tariffication” of import restrictions in the late 1980s, as duty rates were lowered in the early 1990s it is likely that significant “quota premiums” would have reappeared on many imports. This means that when import licensing was lifted in 1993, the domestic market price of these imports would have dropped without any further cut in their tariff rates. Moreover, decomposition of the high duty rate class would be useful to analyze over the 1990s the behavior of import classes which were in the most restrictive import licensing schedules and/or the highest tariff bands in the early 1990s compared to the other imports.

While the liberalization effects have resulted in significant import growth, and a marked shift towards the higher duty rate imports that yield higher revenues per shilling of imports, and exemption legislation and administration have restricted the use of exemptions, there still remains an unpredicted excess revenue collection compared to what is predicted based on past collection performance as measured by effective duty rates or customs revenue yields. This point was illustrated in Tables 1 through 4 above. Table 9 returns to the issue focusing on the significant shift in EDR (D/HUM) and duty yield (D/GDP) that started in 1994/95. Based on

observed actual import shares of GDP (HUM/GDP), duty-paid imports as a share of home use imports (DPM/HUM) and trade weighted average duty rates for all import items for 1993/94 and 1994/95, estimates are made of expected customs revenue yields and EDR. Estimates for 1993/94 are higher than actual collection rates, while estimates for 1994/95 are lower than actual rates by 4.5%. It is expected that yields and EDR would decline in 1994/95, but in fact actual collections increased. When projections of 1994/95 are made based on 1993/94 EDR and duty yield, then actual EDR and yield exceed these estimates by 43% and 34%, respectively. The same excess yield is also found if projections are made based on 1991/92 actual yield. This indicates that a significant shift occurred in customs compliance in 1994/95 in terms of some combination of quantities, values and classification of imports. A brief account of customs administration reforms in Kenya is provided here to help elucidate these compliance changes.

Table 9. Unexplained excess actual duty collections in 1994/95

Fiscal year		1993/94 (A)	1994/95 (B)	Excess = Actual - Estimate	Relative excess
Actual					
Yield (D/GDP)	(1)	4.0%	4.3%		
HUM/GDP	(2)	31.4%	27.3%		
EDR	(3)	12.0%	15.9%		
Share of duty-paid or non- exempt imports (DPM/HUM)	(4)	64.8%	73.4%		
TWADR, all items	(5)	25.3%	20.7%		
Estimate					
EDR	(6) = (4)*(5)	16.4%	15.2%	0.7%	4.5%
Yield	(7) = (2)*(6)	5.1%	4.2%	0.2%	4.5%
EDR based on 93/94	(A)(3)*(B)(6)/(A)(6)		11.2%	4.7%	42.5%
Yield based on 93/94	(A)(1)*(B)(7)/(A)(7)		3.2%	1.1%	34.4%
Relative yield based on 91/92 (Table 4)		123%	165%		34.1%

Reforms of customs administration

Customs administration in Kenya underwent some major reforms during the 1990s. Following the civil strife in a number of neighboring countries in the 1970s and 80s, to prevent arms smuggling, Kenya had introduced “one hundred percent” import inspection. Given the physical impossibility of implementation, this policy had undermined the effectiveness of customs inspection at the ports, hindered trade facilitation, and also led to a withering of the intelligence and post-release investigation capacity. Starting 1991, selective examination and post release investigation was reintroduced, and work started on rebuilding the intelligence and investigation capacity. Starting in 1992, transit controls to prevent diversion into the domestic market were introduced (given that Kenya is a major transit route for goods destined to interior countries in

East and Central Africa.) Measures included numbered tamper proof seals on containers, independent movement of documents, shorter allowable transit periods, and more recently, increasing use of data sharing with neighboring countries to confirm exit of transit and export shipments from Kenya. Legislative restrictions were also introduced on the use of bonded warehouses starting in 1995 by limiting the types of goods which could enter bond and the length of dwell time in bond. Starting in 1996, enhanced efforts in the management of bonds on transit and warehoused goods were initiated. The formation of the Kenya Revenue Authority (KRA) in 1995 also led to a stronger management and administrative framework for customs through better tax policy and administration co-ordination with the other tax departments, improved staffing and management practices, and improved and sustainable internal customs procedures and systems.

Possibly the most important customs enforcement move came in 1994 with the introduction of a new, comprehensive pre-shipment inspection program.¹¹ This reform restructured the previous PSI program managed by the Central Bank of Kenya for foreign exchange control purposes into a customs valuation and control program managed by the Ministry of Finance. Some of the main features in what turned out to be a very effective program included: (i) An initially very low minimum value of shipment (anything above \$500 was required to be inspected, but the limit was subsequently gradually raised to \$5,000 by 1998), ensured immediate capture of the importer community by the program and prevented shipment splitting. (ii) Independent and rapid supply of computerized copies of the Clean Report of Finding (CRF) documents to the ports of entry to minimize any in-country tampering and interference, and ensure availability of the CRF to customs officials at the time of entry and clearance. Copies of these documents were also supplied to the Ministry of Finance and other central agencies to monitor the program and import orders. (iii) The CRF generally provided the minimum value for customs valuation to remove options for negotiated values and also minimized opportunities for misclassification and under declaration of quantities. (iv) Penalties, typically at a rate of 20%, were charged on goods arriving without inspection and requiring in-country destination inspections. One immediate indicator of the enforcement effect of this program was a sudden surge in transit entries to avoid pre-shipment inspection that necessitated the development of many of the transit control measures discussed above.

Subsequently, in 1998, to strengthen the effectiveness of the PSI program and prepare for conversion in 2000 to WTO/GATT valuation system (which uses declared transaction or invoice values as the primary basis for customs valuation), a new supplementary program of Import Verification was introduced. This program included (i) a selective secondary destination inspection to jointly audit the customs and pre-shipment inspections, including checks on the country of export prices on the CRF; (ii) a comprehensive reconciliation of customs and PSI documents to ensure that Customs is effectively using the PSI information; and (iii) the establishment of a customs valuation data base in preparation for GATT valuation systems. This program ensures more effective PSI and customs performance and also serves to identify shipment splitting to avoid PSI and better cargo control at the ports because the goods selected for arrival inspection include those outside of the PSI net. One immediate indicator of the

¹¹ See for example, Alan J. Robinson, *Customs Reform in Kenya Using PSI*, paper presented at a symposium on Innovations in Tax Administration: Customs in the 21st Century, Harvard Institute for International development and international Tax Program, Harvard University, November 1996.

impact of secondary inspection was a noted increase in cross-border smuggling as customs fraud in the main ports of entry became more difficult.

The marked coincidence of the introduction of a new comprehensive PSI program in 1994 with the onset of significant over-performance relative to past customs collections by some 34% in 1994/95, even after standardizing for changes in import levels, exemptions, and trade weighted tariff rate changes, suggests strongly that the improved compliance effects of this program explain much of this improvement in collection performance. As the results in Table 4 indicate, this excess collection performance was generally sustained and improved. The description of the administrative and policy reforms through the 1990s, indicate, however, that sustained efforts were required to continuously strengthen customs capacity, and to ensure the integrity and effectiveness of the PSI program through mechanisms such as the Import Verification program. Efforts to reduce transit, export and bonded warehouse fraud, which are largely outside of the PSI and Import Verification programs have also added to the revenue yield over and above that predicted by the tariff structure and import flows.

6. Summary and Concluding Remarks

Table 10 summarizes some of the broad findings of this paper. As the detailed analysis of annual customs data suggest, the liberalization experience of the 1990s can be analyzed by a comparison of customs performance in the initial period of 1989/90-93/94 and 1994/95-98/99. The two periods are divided by the major changes in trade policy in 1993-94 through removal of import licensing and foreign exchange controls, and the significant upgrading of customs enforcement through the introduction in mid-1994 of a new pre-shipment inspection (PSI) program and stepped up and ongoing efforts to strengthen customs capacity within the context of the Kenya Revenue Authority. Using expressions for (X) and (Z) above for the effective duty rate (EDR) and (X') and (Z') for the duty yield ($DY = D/GDP$), estimates are made for the EDR and duty yield within periods and between periods (the latter period outcome is estimated based on the actual performance in the former period.) The estimates control for the relative changes between the periods in duty rates, exemptions and imports: (i) trade weighted average duty rate for all imports declined by 29.5%; (ii) the share of duty-paid or non-exempt import increased by 11.5%; and (iii) the home-use imports as a share of GDP increased by 10.6%. The following are evident. First, within the initial period, the actual EDR and duty yield under perform the estimated levels by 36% and 34%, respectively, whereas in the later period they exceed the estimates by 7%. Second, when projecting the second period performance based on the first, the actual EDR exceeds the estimate by 67% and the actual duty yield exceeds the estimate by 160%.

The explanation for the remarkable phenomenon of Kenyan customs duty yield rising in the second half of the 1990s despite significant reductions in the tariff rates has to draw upon a range of contributory factors. The most obvious and observable are:

- a. Increase in import volumes following trade liberalization
- b. Decrease in duty exempt imports through fewer exemption categories, reduced

legislative discretion and access to exemptions, and through tighter administration of exemption approvals and import entry controls

- c. Increased effective duty rates on oil products and variable duty agricultural commodities.
- d. A major shift amongst imports subject to *ad valorem* rates towards imports in the high duty rate group (defined as an import duty rate over 15% in 1996/97) and a relatively larger reduction in exemptions amongst the high duty rate group than imports in the lower rate groups resulting in an doubling of the share of customs duties being derived from the high duty rate import group.

Despite this lengthy list of explanations, there is some 67% to 160% improvement in revenue collection performance in the later part of the 1990s compared to the former, that requires explanation of the relative contributions of factors. Comparison of 1994/95 with the prior year suggest that the PSI program may have generated a 34% improvement in revenue collection performance. This would imply that other improvements in customs administration also contributed significantly to the performance, especially actions taken to control transit, export (particularly oil product export) and bonded warehouse frauds which generally fall outside of the direct effects of the PSI program. More recently, the Import Verification program would have added to the customs controls, enhanced PSI company performance and ensured more effective use of the PSI data by customs officials. It is also noted that behavioral interactions probably occurred between tariff rate reductions and customs compliance, particularly amongst the high tax rate groups.

Table 10. Summary of customs collection: comparison of 1989/90-93/94 period with 1994/95-98/99 period

		1989/90-93/94	1994/95-98/99	Difference	Relative difference
		(A)	(B)	(B)-(A)	
Trade weighted average duty rate (TWADR), all imports	(1)	24.1%	17.0%	-7.1%	-29.5%
Share of duty-paid or non-exempt home-use imports ($\beta = \text{DPM}/\text{HUM}$)	(2)	68.5%	76.3%	7.8%	11.5%
Estimated EDR (D/HUM)	(3) = (1) * (2)	16.5%	13.0%	-3.5%	-21.4%
Actual EDR	(4)	10.6%	13.9%	3.3%	30.8%
Excess of actual over estimated EDR within period	(4)-(3)	-5.9%	0.9%		
Relative excess of actual over estimated EDR within period		-35.9%	6.7%		
Estimated EDR based on 1989/90-93/94 performance	(5) = (A)(4)*(B)(3)/(A)(3)		8.3%		
Excess of actual over estimated EDR between periods	(4)-(5)		5.5%		
Relative excess of actual over estimated EDR between periods			66.5%		
Ratio of home-use imports to GDP (HUM/GDP)	(6)	26.2%	29.0%	2.8%	10.6%
Estimated customs duty yield (D/GDP)	(7) = (3) *(6)	4.3%	3.8%	-0.6%	-13.1%
Actual customs duty yield (D/GDP)	(8)	2.8%	4.0%	1.2%	41.2%
Excess of actual over estimated duty yield within period	(8) - (7)	-1.5%	0.3%		
Relative excess of actual over duty yield within period		-34.2%	6.9%		
Estimated duty yield based on 1989/90-93/94 performance	(9) = (A)(8)*(B)(7)/(A)(7)		2.5%		
Excess of actual over estimated duty yield between periods	(8)-(9)		1.5%		
Relative excess of actual over estimated duty yield between periods			160.3%		

While this paper has served to reveal some of the major changes in import and customs

performance over the 1990s in the context of trade liberalization, it leaves an agenda of further analysis. Two areas emerge. One is to investigate the changes in composition of the high income group in more detail, including the price effects from lowering the highest duty rates on import values and exemptions. Assessing the importance of the removal the import licensing restrictions on these high rate goods over and above the tariff rate reductions is also needed. Another more difficult, but clearly important area is to go further in trying to relate the specific administrative reforms to actual customs performance. More detailed micro simulation and projection of customs duties could provide a way of identifying and estimating these effects.

A final important question remains. Can Kenya continue to lower duty rates and still improve, or at least sustain customs yields? The answer is probably “yes.” While improved customs administration has clearly raised the revenue yield from imports, customs administration has many avenues along which significant improvements can still be made in customs enforcement and trade facilitation. Aside from further capacity building in management and customs skills, specific areas for improvement include: (i) Improved cargo control systems in the ports can be achieved through electronic data interchange and co-operation with the port authorities and shipping agents. This could eliminate much of the gross or large scale smuggling such as undeclared containers and other cargo. (ii) Enhanced transit and export controls can be achieved through electronic and other interchange of computerized customs information with customs authorities in neighboring countries. (iii) Introduction of more integrated, online computer systems in the long-rooms to upgrade the existing partial on-line and back-up computer systems. Such systems would allow enhanced control of cargo arrivals, and transit and bonded warehouse transactions and control of bonds. (iv) In addition, general capacity building in management and customs skills, especially valuation and investigation can enhance internal capacity. Externally, there is significant scope for more selective and cost-effective use of pre-shipment and post-shipment inspection services. Hence, there should still be room to gain the efficiency effects of lower duty rates without having to make significant increases yet in domestic consumption tax rates. Similarly, yield improvements in domestic consumption taxes through improved administration (rather than higher rates) would also be another preferred route to funding lower import duty rates.