

# *UNU-CRIS Occasional papers*

O-2006/19

## **Do South-South Trade Agreements Increase Trade? Commodity-Level Evidence from COMESA**

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# Do South-South Trade Agreements Increase Trade?

## Commodity-Level Evidence from COMESA

*Anna Maria Mayda and Chad Steinberg*

### **Abstract**

South-South trade agreements are proliferating: Developing countries signed 70 new agreements between 1990 and 2003. Yet the impact of these agreements is largely unknown. In this paper, we focus on the static effects of South-South preferential trade agreements stemming from changes in trade patterns. Specifically, we estimate the impact of the Common Market for Eastern and Southern Africa (COMESA) on Uganda's imports between 1994 and 2003. We use detailed import and tariff data at the 6-digit Harmonized System level for more than 1,000 commodities. Based on a difference-in-difference estimation strategy, we find that—in contrast to evidence from aggregate statistics—COMESA's preferential tariff liberalization has not considerably increased Uganda's trade with member countries, on average across sectors. The effect, however, is heterogeneous across sectors. Finally, we find no evidence of trade-diversion effects.

JEL Classification Numbers: F13, F14, F15, O24

Keywords: South-South Trade Agreements, Trade Creation, Trade Diversion

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## **I. INTRODUCTION**

The number of preferential trade agreements (PTAs) between low-income countries, so-called South-South trade agreements, has increased dramatically in the last decade. Indeed, between 1990 and 2003, low-income countries signed 70 new PTAs (WTO 2003). South-South arrangements account for more than 50 percent of all new trade agreements. Important examples of such arrangements include Mercado Común del Sur (MERCOSUR) in South America and the Common Market for Eastern and Southern Africa (COMESA) in Africa. Countries that are both poor and small frequently enter into PTAs; Africa alone has 30 such arrangements (Yang and Gupta, 2005). Many PTA-member countries belong to more than one agreement, resulting in competing demands.

While increasingly popular, South-South PTAs between small countries may not yield significant economic gains for their members. South-South PTAs are more likely to give rise to trade diversion rather than trade creation. In addition, pro-competitive effects for local firms arising from greater competition and dynamic efficiency gains linked to economies of scale are unlikely, as partner countries are usually both poor and small. Moreover, fiscal revenues in low-income countries are more vulnerable to trade reforms (see section III).

The empirical evidence of trade effects in PTAs is mixed (see section II). Papers in this literature, in general, use country-level data, and capture the impact of preferential trade agreements by introducing a PTA dummy variable in a gravity-model framework. The dummy variable, however, is endogenous, since the decision to create or join an agreement is not random. In addition, aggregate data masks commodity-level heterogeneity, which may also bias the estimates.

Clausing (2001) and Romalis (2005) eliminate some of these problems by using commodity-level data to analyze the effects of the North American Free Trade Agreement (NAFTA) and the Canada-United States Free Trade Agreement (CUSFTA). To the best of our knowledge, we are the first in the literature to apply their empirical strategy to a South-South trade

agreement. Specifically, we focus on the static effects of COMESA resulting from changes in trade patterns. By exploiting the variation in the data across commodities, origin countries, and time, we estimate the impact of COMESA-related preferential trade liberalization on Uganda's imports between 1994 and 2003. We also investigate whether these changes stem from trade creation or trade diversion.

We focus our analysis on COMESA as it is a good example of a South-South preferential trade agreement involving small economies. All member countries are truly small in the world economy and the agreement has been in effect since 1994. Within COMESA, we analyze the impact of preferential liberalization on Uganda's trade patterns as Uganda represents a relatively stable economy in this time period.

Using a difference-in-difference estimation strategy, we show that reductions in the preferential tariff rate applied by Uganda to other COMESA member countries did not considerably increase Uganda's imports from such countries. In other words, Ugandan consumers--on average across the sectors examined--have been reluctant to switch the origin of their purchases to COMESA countries following the advent of the COMESA agreement.

According to our findings, the elasticity of imports with respect to tariff rates is between 14 percent and 16 percent. In addition, the elasticity of substitution between varieties of the same good from different origin countries is approximately 1.7. The magnitude of these effects is relatively small, compared with the results from previous studies for the United States and Canada within CUSFTA and NAFTA (Clausing 2001, Romalis 2005). Romalis's estimate for Mexican imports, however, is closer to our estimate for Uganda. This difference could mean that consumers in low-income countries, in general, have relatively inelastic demand curves and are thus less likely to benefit immediately from trade reform. Search costs may partly explain the reluctance of low-income consumers to switch the origin of their purchases from one country to another.

Our results, however, are also consistent with the most important criticism of South-South PTAs—that is, because member countries are not natural trading partners, such agreements are unlikely to produce substantial increases in trade volumes. Our finding that COMESA’s effect on Uganda’s imports is heterogeneous across sectors supports this interpretation. In particular, the industries that experienced larger and statistically significant increases in trade volume were those in which developing countries tend to have a comparative advantage.

Our elasticity estimates withstand a number of robustness checks. One concern is that COMESA-related reductions in tariff rates might have been offset by an increase in nontariff barriers on the same commodities. For example, after COMESA’s initial implementation, Uganda imposed ad valorem excise taxes on selected goods that tended to be produced by COMESA countries. We think such an offsetting effect is unlikely, given that we partially account for nontariff barriers by using data on import excise taxes. Political economy factors are also unlikely to affect our results because our main specification controls for both time-invariant political-economy factors and political-economy factors that change over time that are common across member and non-member countries. In addition, our findings are not overturned by a triple-difference estimation strategy that controls for factors that change over time and are specific to each import country (a robustness check that follows Romalis (2005)). Lastly, our results grow more robust when we consider the possible impact of tax evasion on recorded imports, as documented by Fisman and Wei (2001).<sup>3</sup>

Finally, our empirical analysis investigates whether Uganda’s small increase in trade volumes following COMESA reflects trade-creation or trade-diversion effects. We find no evidence that Uganda’s imports from non-COMESA countries shrunk after the start of the agreement. Thus, COMESA’s small but positive effects on trade volumes appear to be associated with trade creation. Notice that this result is not consistent with the expectation in the literature that South-South PTAs imply trade diversion. Finally, although we conclude

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<sup>3</sup> One reason why recorded imports are low when tariffs are high is tax evasion. Thus, when tariffs come down, a corresponding increase in imports might partly reflect an increase in *recorded* (as opposed to *actual*) imports due to reduced tax evasion.

that the trade effects are minimal, it is important to note that even small increases could represent a marked improvement for small, low-income countries in Sub-Saharan Africa.

We organize the remainder of the paper as follows: Section two surveys the literature; section three reviews the theory; section four describes the data used in our analysis and the specifics of the trade agreement; section five develops the empirical strategy and presents the results; and section six concludes.

## **II. LITERATURE**

Empirical work on preferential trade agreements is extensive. In general, these studies are either ex ante computable-general-equilibrium (CGE) studies (see Baldwin and Venables 1995 for a survey of such work) or ex post empirical studies. The ex post analyses can be further divided into studies using aggregate-level data and those using either sector-level or commodity-level data.

The ex post studies drawing on aggregate-level data capture the impact of preferential trade agreements by introducing a PTA dummy variable in a gravity-model framework (e.g., Frankel and Wei 1995).<sup>4</sup> Although these papers generally find that PTAs boost trade volumes, the estimated effects are likely biased due to endogeneity and reverse causality concerns. Such bias mainly arises because the decision to create or join an agreement usually is not random. For example, high trade volumes increase the likelihood that countries will enter into an agreement. To address this concern, Magee (2003) models the PTA dummy variable as endogenous in a gravity-type equation. He finds that, once endogeneity is taken into account, the impact of PTAs on trade patterns is unstable and at times not positive across different specifications.

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<sup>4</sup> The empirical approach of this early literature was of course limited by the fact that, at the time these papers were written, commodity-level data were not easily accessible.

Many studies on South-South PTAs and on African PTAs, in particular, use the pre-Magee (2003) gravity-type approach and thus may be subject to endogeneity concerns (for example, Cernat 2001 and Subramanian and Tamirisa 2001). Cernat (2001) finds that COMESA has produced net trade-creation effects with no evidence of trade diversion.<sup>5</sup> Subramanian and Tamirisa (2001), however, find a negative block effect for COMESA countries before the formation of the agreement. In 1990, COMESA members traded significantly less goods with each other than did the average pair of countries in the sample. This finding suggests that COMESA countries are not natural trading partners and that the agreement is more likely to lead to trade diversion.<sup>6</sup>

The second subset of ex post studies employs sector-level and commodity-level trade data to help overcome some of the limitations of the gravity-type approach (Clausing 2001; Krueger 1999, 2000; Romalis 2005; Yeats 1998a, 1998b). Clausing (2001) estimates the effect of CUSFTA on trade flows from Canada to the United States, and Romalis (2005) estimates the impact of NAFTA and CUSFTA on member countries' imports using a triple-difference estimation technique<sup>7</sup>. Clausing finds no evidence of trade diversion as a result of CUSFTA. Romalis, in contrast, finds evidence of trade-diversion effects on member countries' imports. In addition, he finds that import demand in the United States and Canada—two large, developed countries—are highly sensitive to tariff movements. By contrast, he finds that import demand in Mexico – a poorer, less-developed nation—are fairly inelastic, consistent with our findings for Uganda. In addition, based on estimated elasticities of total export supply, Romalis finds evidence that NAFTA and CUSFTA had a modest effect on border prices and welfare.

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<sup>5</sup> To differentiate between trade creation and trade diversion, Cernat (2001) introduces two dummy variables: one that captures whether two countries belong to the same PTA, and one that captures whether one country belongs to a PTA while the other does not.

<sup>6</sup> Other studies using aggregate data to analyze African trade patterns are Foroutan and Pritchett (1993), Coe and Hoffmaister (1999), Rodrik (1999), and IMF (2000).

<sup>7</sup> This triple-difference estimation strategy is equivalent to what we use in the last column of Table 7.

From a methodological viewpoint, our paper is most closely related to Clausing (2001) and Romalis (2005). To the best of our knowledge, we are the first in the literature to apply their empirical strategy to a South-South trade agreement. Our paper is also closely related to recent works in the literature estimating import demand elasticities (Kee, Nicita, and Olarreaga 2005) and elasticities of substitution (Broda and Weinstein 2004).

### III. TRADE CREATION AND TRADE DIVERSION

The welfare impact of PTAs is unclear. As first stated by Viner (1950), preferential trade liberalization can either result in inefficient, high-cost domestic production being supplanted by low-cost imports from member countries (i.e., trade creation) or in efficient, low-cost imports from nonmember countries being replaced with less-efficient imports from member countries (i.e., trade diversion). Consider the case of a small-open economy: If trade creation occurs as a result of a PTA, the agreement is welfare-improving. If trade diversion occurs, the effect on welfare through changes in trade patterns is unclear.<sup>8</sup> In the case of large open economies, terms-of-trade changes make it harder to sign the net welfare effect of PTAs. However, our focus on COMESA, which involves small open economies,<sup>9</sup> allows us to abstract from terms-of-trade changes.<sup>10</sup>

The difference between trade creation and trade diversion is also relevant from a political-economy point of view. Preferential trade agreements that result in trade creation are more

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<sup>8</sup> The case of trade diversion of preferential tariff liberalization for a small open economy (SOE) is, in welfare terms, very similar to the case of nondiscriminatory tariff liberalization for a large open economy (LOE). In both situations, the net welfare effect is ambiguous due to the change of border prices faced by the country. However, in the PTA SOE case with trade diversion, the change of border prices is due to the discriminatory nature of the PTA. In the LOE case of nondiscriminatory trade liberalization, the change of border prices is driven by a terms-of-trade effect.

<sup>9</sup> Given the small-open-economy assumption--that is, infinite export supply elasticity--shifts in Uganda's import demand caused by preferential trade liberalization do not affect border prices.

<sup>10</sup> Besides the static effects of PTAs through changes in trade patterns, additional welfare effects include the impact of PTAs on imperfectly competitive markets and their dynamic effects. See Baldwin and Venables (1995) for a complete survey. In this paper, we focus only on the static effects of PTAs that take place through changes in trade patterns.



likely to be building blocks for multilateral trade negotiations. Indeed, policymakers can build consensus around the visible gains of partial trade liberalization. By contrast, industries characterized by trade diversion—in which imports from PTA member countries replace imports from more efficient nonmember countries—could deter further multilateral free trade efforts. In such industries, the threat of direct competition with more efficient producers in nonmember countries could create greater resistance to global free trade (Krishna 1998, Krueger 1999).

The welfare effects occurring through trade creation and trade diversion—as well as through other channels—imply that South-South PTAs involving small countries are the least likely to produce gains for their members for several reasons. First, developing countries typically are not natural trading partners, as evidenced by the fact that they trade little with each other as a share of total imports.<sup>11</sup> For example, the 2001 share of African imports from other African countries was approximately 9 percent (IMF 2002). The reason is that low-income countries tend to have similar relative factors supplies, therefore the incentive to trade with each other is smaller than for dissimilar countries. In other words, developing countries tend to have a comparative advantage in the same sectors; therefore, they generally are not low-cost producers of goods imported by other developing countries. By this reasoning, South-South trade agreements are likely to lead to trade diversion as opposed to trade creation, if any increase in imports occurs at all. From a political-economy point of view, trade diversion in turn implies a stumbling-block effect of South-South trade agreements for multilateral trade liberalization.

Second, low-income and small PTA partner countries are less likely to produce efficiency gains linked to economies of scale and to trigger pro-competitive effects for local producers. The reason is that South-South PTAs offer their members access to smaller markets than do North-South agreements. In addition, firms in PTA member countries with developing economies may not be much more efficient than home firms. Therefore, competitive pressure

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<sup>11</sup> On the other hand, low trade volumes between developing countries may reflect mutually high trade barriers.

on domestic producers may not be very strong. Finally, because trade taxes constitute a large proportion of developing countries' domestic revenues, the loss of tariff revenue may hurt a developing country's fiscal position more than a developed country's. In Uganda, for example, tariff revenue declined significantly (by 8 percent of GDP) after the inception of COMESA (Figure 1). For these and other reasons, some researchers think developing countries gain more economically from North-South PTAs than from South-South PTAs (Schiff 1997, Schiff and Winters 2003).<sup>12</sup>

#### IV. DATA

We use commodity-level import and tariff data at the 6-digit Harmonized System level. Import statistics by origin country come from the COMTRADE database, developed by the United Nations Statistics Division. Data on preferential and most favored nation (MFN) tariff rates as well as import excise taxes are from TRAINS, developed by UNCTAD. We access both data sets through the World Integrated Trade Solution (WITS) system, designed by the World Bank.

COMESA is an example of a South-South PTA involving small economies. The treaty establishing COMESA as a preferential trade agreement of Eastern and Southern African states was ratified on December 8, 1994.<sup>13</sup> At that date, some COMESA countries, including Uganda, were already part of a regional trade agreement called PTA.<sup>14</sup> The data available for Uganda, used in this paper, cover the last year of the PTA agreement (1994) and four years

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<sup>12</sup> For example, consider the following quote from Schiff and Winters (2003): "One of the main themes of this book is our preference for North-South over South-South RIAs for developing countries. If a developing country is going to pursue regionalism, it will almost always do better to sign up with a large rich country than with a small poor one. In trade terms, a large rich country is likely to be a more efficient supplier of most goods and a source of greater competition for local producers" (p. 15).

<sup>13</sup> The member countries of COMESA are Angola, Burundi, Comoros, Democratic Republic of Congo, Djibouti, Egypt (which joined in 1998), Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Namibia, Rwanda, Seychelles (which joined in 1997), Sudan, Swaziland, Uganda, Zambia, and Zimbabwe. In terms of population, this agreement is extensive; the overall population of COMESA countries was approximately 380 million people in 1998.

of the COMESA agreement (2000 to 2003). For each of these five years, we merge data on the value of Uganda's imports, at the commodity level and by country of origin, with data on Uganda's PTA tariff rates (for 1994), COMESA tariff rates (for 2000 to 2003), and MFN tariff rates (for all years). We also use data on Uganda's import excise taxes.

Uganda's data for the five years examined is coded according to three different versions of the Harmonized System (HS) classification: H0 for 1994, H1 for 2000 and 2001, and H2 for 2002 and 2003. We use WITS's concordance tables and recode all the data following the H0 classification.<sup>15</sup> Tariff data is presented according to the HS classification up to the 8-digit level, but disaggregate import values only up to the 6-digit level. We use the simple average tariff rate for each 6-digit level code (averaged over the 7-digit and 8-digit level codes).<sup>16</sup> Finally, the tariff rates used in the empirical analysis incorporate information on import excise taxes levied on each product.

Tables 1 through 4 present summary statistics of the main variables used in our analysis. The tables document the extent and patterns of preferential and MFN tariff liberalization in Uganda between 1994 and 2003. The tables also offer a preliminary view of the impact of trade liberalization (preferential and otherwise) on Uganda's imports.

Table 1 shows that tariff rates faced by COMESA countries decreased substantially from 1994 to 2003, from an average preferential tariff rate (across tariff lines) of 11.3 percentage points to an average of 5.5 percentage points. At the same time, the average value of imports

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<sup>14</sup> The PTA, which was ratified in 1982, encompassed Burundi, Comoros, Djibouti, Ethiopia, Kenya, Malawi, Mauritius, Rwanda, Swaziland, Uganda, Zambia, and Zimbabwe (all of which were part of the later COMESA) as well as Somalia and Lesotho.

<sup>15</sup> Going from the H2 and H1 to the H0 classification, a few different H2 codes and H1 codes are reclassified as the same H0 code. In those cases, for each H0 code we use the simple average of the tariff rates (averaged over the overlapping H2 or H1 codes).

<sup>16</sup> Another complication is that Uganda belonged to other preferential trade agreements during the period examined (e.g., the Cross-Border Initiative and the East African Community agreement). We do not have data on preferential tariff rates within these other agreements. Our results hold to the extent that Uganda applied COMESA tariff rates to COMESA countries belonging to other PTAs. This assumption is consistent with our understanding of these arrangements (IMF 2000, McIntyre 2005).

of a 6-digit HS commodity from these same countries increased substantially (from US\$155,000 to US\$289,000). Table 2 shows that MFN tariff rates decreased even more than preferential tariff rates (from 17.9 percentage points in 1994 to 10.2 percentage points in 2003), but were on average higher than preferential tariff rates in both 1994 and 2003. Imports from non-COMESA countries also increased during this time period. The overall evidence on changes in imports, from both COMESA and non-COMESA countries, is consistent with the pattern of *total* imports (as a percentage of GDP) shown in Figure 1.

Tables 3 and 4 track the distribution of tariff rates (both preferential and MFN rates) between 1994 and 2003. In 1994, the distribution mode of preferential tariff rates is between 5 and 10 percent. In 2003, that same distribution mode is less than 5 percent. However, during the period, the distribution mode of MFN tariff rates remained the same (between 5 and 10 percent) .

Finally, appendices I and II show preferential and MFN tariff rates in 1994 and 2003 by 2-digit 1996 HS codes. As shown in appendix I, the sectors that experienced the greatest reduction in *preferential* tariff rates between 1994 and 2003 were “edible fruit and nuts...,” “vegetable plaiting materials...,” “essential oils, etc.; perfumery, cosmetic...,” “prep feathers, down etc...,” and “musical instruments...” Some sectors, including “tobacco and manufactured tobacco substitutes,” saw an increase in the preferential tariff rate due to import excise taxes that generally targeted COMESA-member goods. Appendix II shows that the sectors that experienced the greatest reduction in MFN tariff rates in the same period were “coffee, tea, mate and spices,” “vegetable plaiting materials,” and “raw hides and skins and leather.” Finally, appendix III shows Uganda's total imports by country of origin in 1994 and 2003 (calculated based on data at the commodity level). Kenya is the largest exporter to Uganda in both years. Imports from other COMESA countries are substantially smaller.

In our empirical analysis, following the previous literature, we ask the following questions: To what extent did Uganda's imports from COMESA countries increase as a result of COMESA's preferential trade liberalization? And to the extent such imports did increase,

how much of this increase was a result of trade diversion, as evidenced by a reduction in imports from non-COMESA countries? To fully explore both questions, we take a counterfactual approach, as we cannot simply consider the change in imports from COMESA and non-COMESA countries between 1994 and 2003. Instead, we estimate how much trade would have changed in the absence of the trade agreement and net this effect out from our measure, as described in the next section.

## V. EMPIRICAL STRATEGY AND RESULTS

In this section, we exploit the time, commodity, and origin-country variation in imports and tariffs to identify COMESA's impact on Uganda's imports. We first develop a simple model that delivers the estimating equations of our empirical analysis using a methodology closely related to that used by Clausing (2001) and Romalis (2005). We proceed from the simplest to the most sophisticated estimation strategy, reflecting the successive advances in the literature.

We assume that each commodity  $i$  is differentiated by country of origin  $c$  (Armington assumption).<sup>17</sup> Varieties from different origins of the same good are not perfect substitutes; the impact of preferential trade liberalization on trade patterns is captured by the elasticity of substitution between varieties of different origins. The representative consumer in Uganda maximizes the following Cobb-Douglas utility function (at time  $t$ ) over aggregate consumption of each commodity  $i$ ,  $Q_{it}$ , subject to total expenditure being less or equal to total income  $Y_t$ :

$$U_t = \sum_i b_i \lg Q_{it} , \quad \text{where } \sum_i b_i = 1 . \quad (1)$$

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<sup>17</sup> We use the terms “commodity,” “product,” and “good” interchangeably in the paper.

Consider a constant elasticity-of-substitution (CES) demand structure over varieties of commodity  $i$  coming from each country  $c$  at time  $t$ :

$$Q_{it} = \left[ \sum_c q_{ict} \frac{\sigma_i - 1}{\sigma_i} \right]^{\frac{\sigma_i}{\sigma_i - 1}}, \sigma_i > 1, \quad (2)$$

where  $q_{ict}$  is the quantity demanded in Uganda of commodity  $i$  from country  $c$  at time  $t$ , and  $\sigma_i$  is the elasticity of substitution between different varieties of commodity  $i$ . The optimal demand for each variety is found through maximization of aggregate consumption  $Q_{it}$  subject to the following budget constraint:

$$\sum_c q_{ict} \cdot p_{ict} \cdot t_{ict} \cdot g_{ict} = E_{it}, \quad (3)$$

where  $p_{ict} = p_{ict}(a_{ict}, \sigma_i)$  equals the border price of variety  $c$  of commodity  $i$  at time  $t$ ,  $a_{ict}$  equals the marginal cost to produce commodity  $i$  in country  $c$  at time  $t$ ,  $t_{ict}$  is one plus the ad valorem tariff rate applied by Uganda at time  $t$  on variety  $c$ , and  $g_{ict} \geq 1$  represents iceberg transport costs (i.e., in order to have one unit of variety  $c$  of good  $i$  at time  $t$ , it is necessary to buy  $g_{ict}$  units), and  $E_{it} = b_i \cdot Y_t$  gives the total expenditure at time  $t$  on commodity  $i$  (this follows from (5)). In what follows, we will assume that the elasticity of substitution is equal across commodities ( $\sigma_i = \sigma$ , for every  $i$ ).<sup>18</sup> Maximization of (2) subject to (3) results in the following quantity demanded in Uganda of variety  $c$  relative to variety  $c'$  of good  $i$ :

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<sup>18</sup> In the empirical analysis, we first estimate a common elasticity of substitution across commodities. We next estimate elasticities of substitution that are specific for each one-digit HS sector (see Section V.C).

$$\frac{q_{ict}}{q_{ic't}} = \left( \frac{p_{ict} \cdot g_{ict} \cdot t_{ict}}{p_{ic't} \cdot g_{ic't} \cdot t_{ic't}} \right)^{-\sigma}. \quad (4)$$

The quantity demanded of variety  $c$  is therefore equal to:

$$q_{ict} = (p_{ict} \cdot g_{ict} \cdot t_{ict})^{-\sigma} \frac{E_{it}}{\left[ \sum_{c'} (p_{ic't} \cdot g_{ic't} \cdot t_{ic't})^{(1-\sigma)} \right]}, \quad (5)$$

which gives a CIF value (cost including insurance and freight) of:

$$m_{ict} \equiv q_{ict} \cdot p_{ict} \cdot g_{ict} = \left( \frac{p_{ict} \cdot g_{ict}}{P_{it}} \right)^{(1-\sigma)} \cdot t_{ict}^{-\sigma} \cdot E_{it}, \quad (6)$$

where  $P_{it} = \left[ \sum_c (p_{ict} g_{ict} t_{ict})^{(1-\sigma)} \right]^{\frac{1}{(1-\sigma)}}$  is the price index of good  $i$  at time  $t$ . Taking

logarithms of expression (6), we can derive the first specification of the empirical model:

$$\lg m_{ict} = -\sigma \lg t_{ict} + (1-\sigma) \lg p_{ict} + (1-\sigma) \lg g_{ict} - (1-\sigma) \lg P_{it} + \lg E_{it}. \quad (7)$$

Expression (7) is the starting point of our empirical analysis. Throughout our analysis, we use pooled yearly data for 1994 and 2000-2003, and measure the first term on the right hand side in expression (7) using two methods. In Table 5, we use the log of (one plus) the preferential tariff rate, as directly implied by (7).<sup>19</sup> In Table 6, we use  $(t_{ict} - 1)$ , which is the ad valorem tariff rate applied by Uganda to commodity  $i$  from country  $c$  at time  $t$  (taking a first-order

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<sup>19</sup> Since in the empirical analysis we express tariff rates in percentage terms,  $\lg t_{ict}$  is calculated as the log of (100 plus) the tariff rate.

Taylor approximation,  $\lg t_{ict} \cong (t_{ict} - 1)$ . While the coefficient on the first measure represents the impact of a percentage change of (one plus) the tariff rate, the coefficient on the second measure gives the impact of a percentage-point change. Each column in the two tables labeled by the same number corresponds to the same specification.

### A. Benchmark Estimators

The first step in our empirical strategy is to estimate naïve benchmark regressions meant to demonstrate that omitted variables biases are important. In particular, in regression (1) of Table 5, we start by regressing the log of imports on the log of (one plus) the preferential tariff rate, the first term on the right-hand side of expression (7). The implicit assumption in this specification is that the remaining terms are orthogonal to the preferential tariff rate. Next, in regression (2), we augment the first regression with year dummies that capture the impact of time effects that are invariant across product codes (e.g., inflation, growth, etc.). Both estimates of trade liberalization (regressions (1) and (2)) are insignificant. We obtain the same insignificant results in Table 6.

Next, in regression (3) of Table 5, we add dummy variables for 6-digit HS product-codes. This specification assumes that the impact of varieties' prices ( $p_{ict}$ ) and transport costs ( $g_{ict}$ ) in (7) is captured by commodity and time dummy variables (in addition to idiosyncratic shocks in the error term). It also posits that, controlling for goods' dummy variables and time effects, the remaining variation in the price index  $P_{it}$  and expenditure  $E_{it}$  is orthogonal to tariff changes. The results of this regression show that the reduction of preferential tariff rates increases imports from COMESA countries. The effect is statistically significant at the 1 percent level. However, the size of the coefficient is not large relative to the coefficient estimated for some other countries in the existing literature (see below).<sup>20</sup>

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<sup>20</sup> We obtain a similar result in regression (3), Table 6.



Next, in regression (4) (Tables 5 and 6) we replace commodity dummy variables with commodity-by-country fixed effects. This technique allows us to control for time-invariant factors that affected demand for, say, Kenyan but not Malawian mangos, or vice versa. This specification controls for all time-invariant determinants of imports of commodity  $i$  from country  $c$ , resulting in a true fixed-effect estimation. Clausing (2001) uses a similar estimation strategy for imports by the United States from Canada. The estimates we find are now smaller in absolute value than in regression (3) but still significant at the 5 percent level. The elasticity of substitution ( $\sigma$ ) is estimated to equal 1.7, while the elasticity of imports with respect to tariff rates is between 14 percent and 16 percent. In particular, if the ad valorem tariff rate decreases by 100 percent (for example, by 10 percentage points when the tariff rate equals 10 percent), then imports from COMESA countries increase by 16 percent (based on column (4), Table 5). Based on column (4), Table 6 if the ad valorem tariff rate decreases by 10 percentage points, imports increase by 14 percent. The magnitude of these effects is relatively small, compared with the results from previous studies for other countries and agreements. In her analysis of U.S. trade imports from Canada within the CUSFTA, Clausing (2001) finds that a 10 percentage point decrease in tariffs implies a 96 percent increase in imports from Canada. Our estimate of Uganda's elasticity of substitution is also much smaller than the estimated elasticity for the United States computed by Romalis (2005), which ranges between 6.2 and 10.9.

For Mexican imports, however, Romalis's estimate ranges between 0.6 and 2.5 and is close to our own for Uganda. Our estimate is also similar in magnitude to the elasticity of import demand for Uganda estimated by Kee, Nicita and Olarreaga (2005) (equal to 1.22).<sup>21</sup> This similarity may suggest that consumers in low-income countries, in general, have more inelastic demand curves and are, therefore, less likely to immediately benefit from trade reform. Search costs may help explain the reluctance of low-income consumers to switch the origin of their purchases from one import country to another.

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<sup>21</sup> The elasticity of import demand equals the elasticity of substitution, if the cross-price demand elasticity between goods is zero, which is the case given a utility function of the CES-Cobb Douglas form (Kee, Nicita and Olarreaga 2005).

Another interpretation of our estimates is that the small effect on Uganda's imports of COMESA's preferential tariff liberalization is due to the South-South nature of the agreement. This reading of the results is consistent with what we find below in Section V.C when we investigate cross-sector heterogeneity.

## B. Difference-in-Difference Estimator

The estimation strategy up to this point depends on several assumptions that may not hold. In particular, the price index  $P_{it}$  and expenditure  $E_{it}$  may not be orthogonal to preferential tariff rates, after controlling for commodity (or commodity-by-country) fixed effects and time effects. For example, if commodities with increased expenditure levels  $E_{it}$  (and thus high imports) are protected against preferential tariff reductions, then our coefficient estimate of  $-\sigma$  in regression (7) would be biased toward zero. Another concern is that  $P_{it}$  might be correlated with preferential tariff movements since, by construction,  $P_{it}$  is a function of all tariffs in the sector, including COMESA tariffs. In addition in Uganda, COMESA and MFN tariff rates were liberalized simultaneously, resulting in a clear correlation between the regressor and  $P_{it}$ .

We next modify our empirical model to address these issues by constructing a difference-in-difference estimator, in which the control group is imports from non-COMESA countries. Using expression (6) for CIF imports by Uganda of variety  $c$  and of variety  $c'$  of good  $i$  at time  $t$ , we can calculate the following ratio:

$$\frac{m_{ict}}{m_{ic't}} = \left( \frac{p_{ict} \cdot g_{ict}}{p_{ic't} \cdot g_{ic't}} \right)^{(1-\sigma)} \cdot \left( \frac{t_{ict}}{t_{ic't}} \right)^{-\sigma}. \quad (8)$$

Let's suppose that  $c$  represents COMESA countries while  $c'$  represents non-COMESA countries. The advantage of considering expression (8), which represents Uganda's *relative* imports from COMESA to non-COMESA countries, is that the terms in  $P_{it}$  and  $E_{it}$  get canceled out from the estimating equation. Expression (8) suggests a new specification of the empirical model. The dependent variable now becomes the logarithm of the ratio of imports from COMESA countries to imports from non-COMESA countries. We regress it on the log of the preference margin afforded by Uganda to preferential trading partners. We calculate the log of the preference margin as the difference between the log of (one plus) the preferential tariff rate and the log of (one plus) the MFN tariff rate. In other words, we estimate the following model (regression (5), Table 5):

$$\lg \frac{m_{ict}}{m_{ic't}} = -\sigma \cdot (\lg t_{ict} - \lg t_{ic't}) + (1 - \sigma) \lg \frac{p_{ict}}{p_{ic't}} + (1 - \sigma) \lg \frac{g_{ict}}{g_{ic't}}, \quad (9)$$

where  $c$  and  $c'$  represent, respectively, the varieties coming from each COMESA member country and from the rest of the world (as a whole). As in regressions (4), we introduce commodity-by-country fixed effects and time dummy variables. Therefore, in this last specification, we only need to assume that the time variation in relative prices and relative transportation costs of two varieties of the same commodity is orthogonal to tariff movements.

Equation (9) clarifies an important point. In the theoretical model, we assume that the elasticity of substitution between varieties of the same good is equal for any pair of origin countries of imports. In practice in the empirical analysis, as made clear by equation (9), the elasticity of substitution we estimate is between COMESA and non-COMESA origin varieties, since we exploit the differential variation in preferential versus MFN tariff rates.

This regression represents our difference-in-difference (and preferred) specification. As mentioned above, this strategy makes it possible to net out the impact of commodity-specific

effects that are time-varying, such as  $P_{it}$  and  $E_{it}$ . Thus, our difference-in-difference estimator also allows us to net out the impact of changes in MFN tariff rates that take place over the same period.

Results in Table 5, regression (5), suggest that the biases due to  $P_{it}$  and  $E_{it}$  may not have been substantial, since our new estimate is very close to what we previously found: The coefficient on the log of the preference margin equals -1.9 (significant at the 10 percent level). In Table 6, regression (5), we also estimate this equation using, as an independent variable,  $(PTAtariff_{it} - MFNtariff_{it})$ , which is the preference margin afforded by Uganda to preferential trading partners, calculated as the difference between the preferential tariff rate and the MFN tariff rate (as before, we use a first-order Taylor approximation to approximate  $\lg t$ ). The results are similar.

### C. Robustness Checks

We next test the robustness of these results (see Table 7). First, in regression (1) of Table 7, we expand the dataset. Some COMESA countries increased exports from zero to a positive value in a specific product code or vice versa. In the former case, by excluding this variation, our previous regression estimates would be biased toward zero. Therefore, whenever import data exists for at least a single year but not the other years, we add observations for the missing year(s), and assign them an import value of US\$1. Results in column (1) suggest that the exclusion of these observations in Tables 5 and 6 did not bias our estimate toward zero.

Second, we relax the assumption that the elasticity of substitution is constant across product codes and run regressions that are specific for each one-digit HS code (see appendices I and II for a list of two-digit codes included in each one-digit code). Estimates of the elasticity of substitution are insignificant for each one-digit sector except HS1, HS2, and HS3 (which include agricultural products and beverages). For these sectors, we estimate elasticities that are substantially higher than the average. We draw two conclusions from this exercise. First, our previous average estimates hide cross-sector heterogeneity. Second, and not surprisingly,

the sectors where the impact is larger and significant are those where developing countries are more likely to have a comparative advantage. These results are presented in regressions (2) through (4) in Table 7.

Finally, we address the possibility that the relative price ( $\frac{p_{ict}}{p_{ic't}}$ ) term in equation (9) might be correlated with the preference margin, even after controlling for commodity (or commodity-by-country) fixed effects and time effects, as done in regression (5), Table 5. Our third robustness check attempts to control for this bias, which is, for example, due to unobserved changes in the marginal cost of production of commodity  $i$  in country  $c$  (affecting the border price) that may be correlated with tariff movements. For example, production of beer in Kenya might have become more efficient relative to non-COMESA countries, and this increased efficiency might be negatively correlated with preferential concessions for political-economy reasons (e.g., the excise taxes on alcohol). This would bias our estimate towards zero.

Expression (8) above refers to Uganda's relative imports (from COMESA versus non-COMESA countries). Based on the same model, we can derive a very similar expression for any other country's relative imports from (the same) COMESA versus (the same) non-COMESA countries. In the following expression, we consider South African imports:<sup>22</sup>

$$\frac{m_{ict}^{SA}}{m_{ic't}^{SA}} = \left( \frac{p_{ict} \cdot g_{ict}^{SA}}{p_{ic't} \cdot g_{ic't}^{SA}} \right)^{(1-\sigma)} \cdot \left( \frac{t_{ict}^{SA}}{t_{ic't}^{SA}} \right)^{-\sigma} \quad (10)$$

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<sup>22</sup> We thank John Romalis for his suggestion to use South Africa in the triple difference specification. We choose South Africa since we want to maximize the number of products that both countries (Uganda and South Africa) import from the same origin country. These are the observations that can be used to estimate equation (15). The apartheid ban on exports to South Africa was lifted in 1993; therefore, the impact on changes between 1994 and 2003 should be minimal.

We then use this expression to construct our triple difference estimating equation, where the dependent variable is the logarithm of Uganda's imports from COMESA countries relative to non-COMESA countries (expression (8)) divided by South Africa's imports from COMESA countries relative to non-COMESA countries (expression (10)):

$$\begin{aligned} \lg \frac{m_{ict}}{m_{ic't}} - \lg \frac{m_{ict}^{SA}}{m_{ic't}^{SA}} = \\ -\sigma \cdot [(\lg t_{ict} - \lg t_{ic't}) - (\lg t_{ict}^{SA} - \lg t_{ic't}^{SA})] + (1 - \sigma)(\lg \frac{g_{ict}}{g_{ic't}} - \lg \frac{g_{ict}^{SA}}{g_{ic't}^{SA}}) \end{aligned} \quad (11)$$

This specification nets out the impact of the relative border-price term, which is independent of the identity of the importing country ( $\frac{p_{ict}}{p_{ic't}}$  appears in both equations (8) and (10) and gets canceled out by taking their ratio). However, as in the previous specifications, we still need to assume that the relative transport-costs term is given by the sum of commodity-by-country fixed effects, time dummy variables, and a random component orthogonal to the preference margin.

This is the approach taken by Romalis (2005). The last column in Table 7 shows the results based on equation (11). The estimated elasticity of substitution is insignificantly different from zero. If this result is due to a true zero elasticity of substitution, then our previous estimates were not underestimating the impact of COMESA on imports; however, if the insignificance of the elasticity is caused by the imprecision of the estimate (e.g., due to few observations), then we cannot draw strong conclusions from this robustness check. In addition, because this robustness check is based on a much smaller number of observations than previous specifications, the estimate might be affected by a selection-bias problem. We check for this problem in regression (5), which delivers a coefficient estimate that is not statistically different from our original estimate of -1.93.

#### D. Trade Diversion

Our last test is for trade diversion. This test is important to make a welfare statement about the impact of the trade agreement. Our investigation is based on the fact that, if trade diversion resulted from the PTA agreement, holding all other factors constant, we would expect a decline in imports from non-COMESA countries in those sectors in which preferential tariff rates decline. Our empirical strategy relies on expression (7) above implemented for imports from non-COMESA countries. Results are presented in Table 8.

The first column presents the results from the regression of the log of non-COMESA imports on the log of the MFN tariff rate. The equation includes commodity-by-country dummies and year effects; therefore it is equivalent to the fourth regression in Table 5 for imports from COMESA countries. The number of observations is more than 62,000, accounting for the much higher share of non-COMESA imports in total imports to Uganda. The coefficient is also small, significant, and is consistent with the results in Table 5. That is, the estimates for the elasticity of substitution between COMESA and non-COMESA countries origin goods, measured using data for imports either from COMESA or non-COMESA countries, are similar.

To test for trade diversion effects, we include the log of the preferential tariff rate in regression (2) to capture the impact of COMESA trade liberalization on non-COMESA imports, which, according to the model, works through  $P_{it}$ . The coefficient on the latter variable is insignificantly different from zero, thus, giving no support to the trade-diversion hypothesis. Trade diversion, however, may occur only in sectors in which COMESA has a comparative advantage. In regressions (3) and (4), to control for this factor, we include as regressors the log of COMESA imports and the COMESA share in imports, respectively, and their interaction with preferential tariff rates. All trade diversion variables remain insignificant. Finally, we find additional evidence consistent with no trade diversion taking place in Figure 2, which shows that the ratio of imports from COMESA relative to non-COMESA (developing) countries decreased after 1994.

Therefore, although COMESA's preferential tariff liberalization has not considerably increased Uganda's trade with member countries, these small effects are likely to be associated with trade creation. This result is inconsistent with the expectations in the literature that South-South PTAs give rise to trade diversion.

## VI. CONCLUSIONS

This paper presents evidence that South-South trade agreements create positive but minimal economic gains for member countries. In particular, using commodity-level data, we find that Ugandan imports of goods from COMESA countries increased only slightly following the advent of COMESA. Notably, commodity-level data offer a different picture of the effect of COMESA than do aggregate-level data (see, for example, our summary statistics in Table 1 and Cernat (2001), who uses a gravity-type analysis<sup>23</sup>).

Our estimates are similar to Romalis's (2005) finding for Mexico within NAFTA. This similarity may indicate that low-income-country consumers generally have more inelastic demand curves than high-income-country consumers, and are thus less likely to immediately benefit from trade reform. Search costs may help explain low-income consumers' reluctance to switch the origin of their imports. An alternative explanation, however, is that developing countries are not natural trading partners owing to their size and similar resources.

Our elasticity estimates withstand a number of robustness checks. One concern is that COMESA-related reductions in tariff rates might have been offset by an increase in nontariff barriers. For example, after COMESA's initial implementation, Uganda imposed ad valorem excise taxes on selected goods that tended to be imported from COMESA countries. We think such an offsetting effect is unlikely, given that we partially account for nontariff

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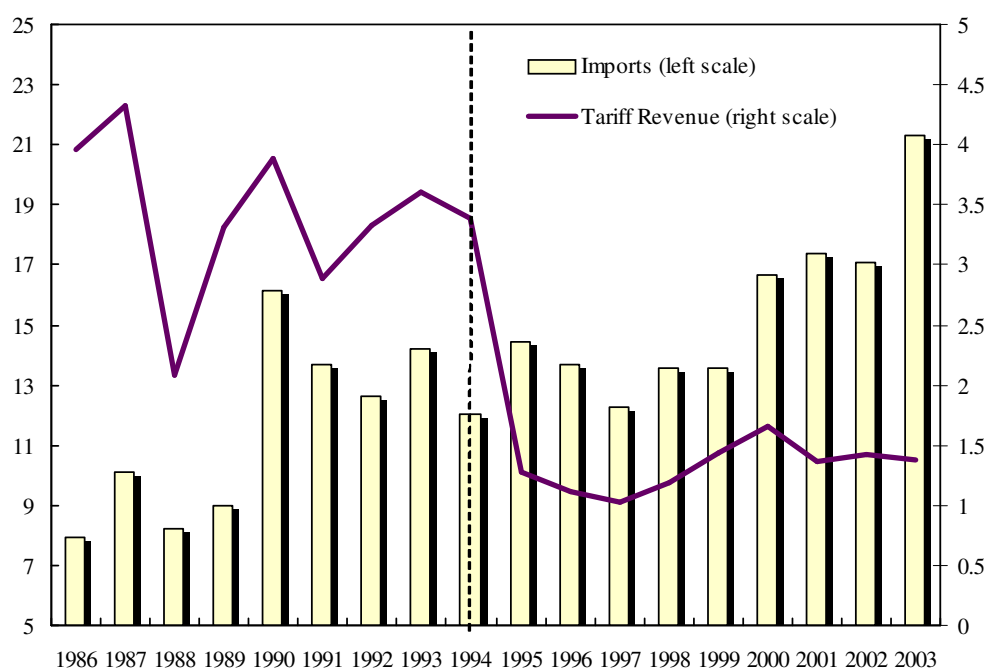
<sup>23</sup> However, as pointed out in the literature survey, the evidence on the effects of South-South African PTAs based on gravity-type analyses of aggregate data yields mixed results (Cernat 2001; Subramanian, and Tamirisa 2001).



barriers by using data on import excise taxes. Political economy factors are also unlikely to affect our results because our main specification controls for both time-invariant political-economy factors and political-economy factors that change over time that are common across member and non-member countries. In addition, our findings are not overturned by a triple-difference estimation strategy that controls for factors that change over time and are specific to each import country (a robustness check that follows Romalis (2005)). Lastly, our results grow more robust when we consider the possible impact of tax evasion on recorded imports, as documented by Fisman and Wei (2001).

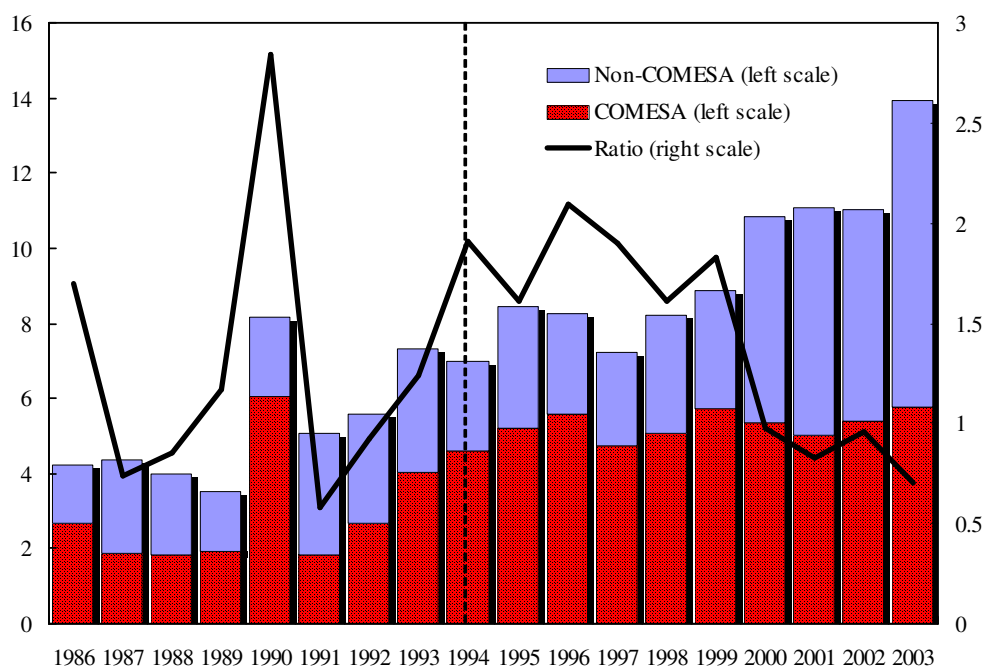
The results of this paper suggest two important questions for future research. First, if economic gains are minimal, what other factors might explain the increased popularity of South-South PTAs? One explanation may be that such arrangements promote non-economic benefits, such as peace and security within a region -- a goal that is, for example, an official priority of COMESA. Indeed, Martin, Mayer, and Thoenig (2005) show that regional trade agreements can reduce the probability of war between liberalizing countries, while multilateral liberalization can potentially increase it. Second, from a normative point of view, given the limited capacity of institutions in the South, are resources efficiently spent in the negotiation and implementation of South-South trade agreements? Such an analysis would better inform efforts to promote trade in developing countries where institutions are weak and resources scarce.

Figure 1. Uganda: Imports and Tariff Revenue (percent of GDP), 1986 - 2003



Source: Ugandan Authorities, DOTS (IMF), and IFS (IMF).

Figure 2 Uganda: Imports from Developing Countries (percent of GDP), 1986 - 2003



Source: Ugandan Authorities, DOTS (IMF), and IFS (IMF); Non-COMESA countries are only non-COMESA developing countries. The ratio is COMESA imports to non-COMESA imports.

**Table 1: Summary statistics for Uganda vis-à-vis COMESA countries (1994-2003)**

| Variable   | Obs   | Mean  | Std. Dev. | Min | Max       |
|--|-------|-------|-----------|-----|-----------|
| <b>Tariff Rate for COMESA countries 1994</b> (percentage points) | 1,204 | 11.3  | 10.0      | 0.0 | 118.0     |
| <b>COMESA Tariff Rate 2003</b> (percentage points)               | 1,204 | 5.5   | 7.8       | 0.0 | 136.0     |
| <b>Imports from COMESA countries (1994, thousand \$)</b>         | 1,204 | 155.2 | 1,065.9   | 0.5 | 20,262.3  |
| <b>Imports from COMESA countries (2003, thousand \$)</b>         | 1,204 | 289.3 | 5,269.1   | 0.5 | 181,275.2 |

The sample is restricted to commodities for which data on imports from COMESA countries is available for both 1994 and 2003.

Tariff rates are adjusted for the existence of import excise taxes.

The tariff rate for COMESA countries in 1994 is the average tariff rate faced by COMESA countries in 1994, which uses both PTA and MFN rates.

Imports refer to a single 6-digit HS commodity.

Preferential tariff rates are set equal to MFN tariff rates when no preferential rate is specified.

**Table 2: Summary statistics for Uganda vis-à-vis non-COMESA countries (1994-2003)**

| Variable   | Obs   | Mean  | Std. Dev. | Min | Max      |
|--|-------|-------|-----------|-----|----------|
| <b>MFN Tariff Rate 1994</b> (percentage points)    | 1,020 | 17.9  | 8.6       | 0.0 | 60.0     |
| <b>MFN Tariff Rate 2003</b> (percentage points)    | 1,020 | 10.2  | 10.2      | 0.0 | 145.0    |
| <b>Imports from non-COMESA (1994, thousand \$)</b> | 1,020 | 364.6 | 1,289.2   | 0.5 | 18,223.9 |
| <b>Imports from non-COMESA (2003, thousand \$)</b> | 1,020 | 718.4 | 2,381.7   | 0.5 | 30,602.1 |

The sample is restricted to commodities for which data on imports from non-COMESA countries is available for both 1994 and 2003. This is a subset of the dataset we use, which restricts productcodes to commodities that in at least one of the years was imported from COMESA.

Tariff rates are adjusted for the existence of import excise taxes.

Imports refer to a single 6-digit HS commodity.

**Table 3: The pattern of protection in Uganda in 1994 and 2003 under the preferential trade agreements (PTA in 1994 and COMESA in 2003)**

| PTA tariff rates                          | 1994  |         |        | COMESA tariff rates                       | 2003  |         |        |
|---|-------|---------|--------|---|-------|---------|--------|
|   | Freq. | Percent | Cum.   |   | Freq. | Percent | Cum.   |
| <b>Free Trade</b>                         | 334   | 6.66    | 6.66   | <b>Free Trade</b>                         | 986   | 20.20   | 20.20  |
| <b>Tariffs under 5 per cent</b>           | 1,172 | 23.36   | 30.01  | <b>Tariffs under 5 per cent</b>           | 2,035 | 41.70   | 61.91  |
| <b>Tariffs between 5 and 10 per cent</b>  | 1,558 | 31.05   | 61.06  | <b>Tariffs between 5 and 10 per cent</b>  | 1,521 | 31.17   | 93.07  |
| <b>Tariffs between 10 and 25 per cent</b> | 1,367 | 27.24   | 88.30  | <b>Tariffs between 10 and 25 per cent</b> | 305   | 6.25    | 99.32  |
| <b>Tariffs over 25 per cent</b>           | 587   | 11.70   | 100.00 | <b>Tariffs over 25 per cent</b>           | 33    | 0.68    | 100.00 |
| <b>Total</b>                              | 5,018 | 100.00  |        | <b>Total</b>                              | 4,880 | 100.00  |        |

Preferential tariff rates are set equal to MFN tariff rates when no preferential rate is specified.

Tariff rates are adjusted for the existence of import excise taxes.

**Table 4: The pattern of protection in Uganda in 1994 and 2003 vis-a-vis the rest of the world (MFN tariff rates)**

| MFN tariff rates                          | 1994  |         |        | MFN tariff rates                          | 2003  |         |        |
|---|-------|---------|--------|---|-------|---------|--------|
|   | Freq. | Percent | Cum.   |   | Freq. | Percent | Cum.   |
| <b>Free Trade</b>                         | 170   | 3.39    | 3.39   | <b>Free Trade</b>                         | 986   | 20.20   | 20.20  |
| <b>Tariffs under 5 per cent</b>           | 11    | 0.22    | 3.61   | <b>Tariffs under 5 per cent</b>           | 12    | 0.25    | 20.45  |
| <b>Tariffs between 5 and 10 per cent</b>  | 2,268 | 45.20   | 48.80  | <b>Tariffs between 5 and 10 per cent</b>  | 2,021 | 41.41   | 61.86  |
| <b>Tariffs between 10 and 25 per cent</b> | 1,298 | 25.87   | 74.67  | <b>Tariffs between 10 and 25 per cent</b> | 1,813 | 37.15   | 99.02  |
| <b>Tariffs over 25 per cent</b>           | 1,271 | 25.33   | 100.00 | <b>Tariffs over 25 per cent</b>           | 48    | 0.98    | 100.00 |
| <b>Total</b>                              | 5,018 | 100.00  |        | <b>Total</b>                              | 4,880 | 100.00  |        |

Tariff rates are adjusted for the existence of import excise taxes.

**Table 5: Estimates Based on Uganda Imports in 1994, 2000, 2001, 2002, and 2003**

|                                   | (1)                             | (2)                            | (3)                              | (4)                              | (5)  |
|-----------------------------------|---------------------------------|--------------------------------|----------------------------------|----------------------------------|--|
| Dependent variable                | Log of imports                  | Log of imports                 | Log of imports                   | Log of imports                   | Difference of log<br>of imports:<br>COMESA vs.<br>non-COMESA |
| Log of preferential tariff        | -0.0879<br>0.2859               | 0.1072<br>0.3085               | -3.1740<br>0.6954**              | -1.7243<br>0.8017*               |  |
| Log of preference margin          |                                 |                                |                                  |                                  | -1.9538<br>1.1924+   |
| Constant                          | 2.4051<br>1.3347                | 1.3715<br>1.4364               | 16.4824<br>3.2408**              | 9.8462<br>3.7372**               | -1.1211<br>0.0857**  |
| Year dummy variables              | No                              | Yes                            | Yes                              | Yes                              | Yes  |
| Commodity dummy variables         | No                              | No                             | Yes                              | No                               | No   |
| Commodity-country dummy variables | No                              | No                             | No                               | Yes                              | Yes  |
| Number of differences             | Zero                            | Zero                           | Zero                             | One                              | Two  |
| Estimator                         | OLS                             | OLS                            | OLS                              | FE                               | FE   |
| Observations                      | 10,341                          | 10,341                         | 10,341                           | 10,341                           | 10,341   |
| R-squared                         | 0.00                            | 0.00                           | 0.60                             | 0.76                             | 0.81   |
| <b>Elasticity of substitution</b> | <b>-0.0879</b><br><b>0.2859</b> | <b>0.1072</b><br><b>0.3085</b> | <b>-3.174</b><br><b>0.6954**</b> | <b>-1.7243</b><br><b>0.8017*</b> | <b>-1.9538</b><br><b>1.1924+</b>                             |

Robust standard errors in parentheses. + significant at 10%; \* significant at 5%; \*\* significant at 1%

The *log of import* equals the log of Uganda's imports from COMESA countries (1994, 2000, 2001, 2002, 2003). The difference of log of imports: COMESA vs. non-COMESA equals the log of Uganda's relative imports from COMESA vs. non-COMESA countries (1994, 2000, 2001, 2002, 2003).

The *log of preferential tariff* equals the log of (100 plus) Uganda's tariff rate (1994, 2002, 2001, 2002, 2003). The log preference margin equals the log of (100 plus) Uganda's preferential tariff rate for COMESA countries (PTA tariff rate (for PTA countries) and customs-duty rate (for non-PTA countries) in 1994; and COMESA tariff rate in 2000, 2001, 2002, 2003) minus the log of (100 plus) Uganda's customs-duty rate for non-COMESA countries.

Commodity dummy variables are set at the 6-digit HS product-code level. Commodity-country dummy variables are for the pairwise combinations of commodities and import-origin countries.

**Table 6: Estimates Based on Uganda Imports in 1994, 2000, 2001, 2002, and 2003**

|                                   | (1)                | (2)                | (3)                 | (4)                | (5)  |
|-----------------------------------|--------------------|--------------------|---------------------|--------------------|--|
| Dependent variable                | Log of imports     | Log of imports     | Log of imports      | Log of imports     | Difference of log<br>of imports:<br>COMESA vs.<br>non-COMESA |
| Preferential tariff rate          | 0.0010<br>0.0024   | 0.0025             | -0.0255<br>0.0069** | -0.0136<br>0.0083+ |  |
| Preference margin                 |                    |                    |                     |                    | -0.0193<br>0.0096*   |
| Constant                          | 1.9879<br>0.0244** | 1.9888<br>0.0443** | 2.2772<br>0.0943**  | 1.8901<br>0.0602** | -1.1295<br>0.0826**  |
| Year dummy variables              | No                 | Yes                | Yes                 | Yes                | Yes  |
| Commodity dummy variables         | No                 | No                 | Yes                 | No                 | No   |
| Commodity-country dummy variables | No                 | No                 | No                  | Yes                | Yes  |
| Number of differences             | Zero               | Zero               | Zero                | One                | Two  |
| Estimator                         | OLS                | OLS                | OLS                 | FE                 | FE   |
| Observations                      | 10,341             | 10,341             | 10,341              | 10,341             | 10,341   |
| R-squared                         | 0.00               | 0.00               | 0.60                | 0.76               | 0.81   |

Robust standard errors in parentheses. + significant at 10%; \* significant at 5%; \*\* significant at 1%

The *log of import* equals the log of Uganda's imports from COMESA countries (1994, 2000, 2001, 2002, 2003). The difference of log of imports: COMESA vs. non-COMESA equals the log of Uganda's relative imports from COMESA vs. non-COMESA countries (1994, 2000)

The *log of preferential tariff* equals the log of (100 plus) Uganda's tariff rate (1994, 2002, 2001, 2002, 2003). The log preference margin equals the log of (100 plus) Uganda's preferential tariff rate for COMESA countries (PTA tariff rate (for PTA count  
Commodity dummy variables are set at the 6-digit HS product-code level. Commodity-country dummy variables are for the pairwise combinations of commodities and import-origin countries.

**Table 7: Robustness Checks**

| Dependent variable                                     | (1)  | (2)  | (3)  | (4)  | (5)  | (6)  |
|--|--|--|--|--|--|--|
|  | Including<br>Missing Obs.                                    | Broad Sectors  |  |  | Triple Diff with<br>South Africa                             |  |
|  | Difference of log<br>of imports:<br>COMESA vs.<br>non-COMESA | Difference of log<br>of imports:<br>COMESA vs.<br>non-COMESA | Difference of log<br>of imports:<br>COMESA vs.<br>non-COMESA | Difference of log<br>of imports:<br>COMESA vs.<br>non-COMESA | Difference of log<br>of imports:<br>COMESA vs.<br>non-COMESA | Diff - in - Diff:<br>COMESA vs.<br>non-COMESA,<br>Uganda vs. South<br>Africa |
| Log of preference margin                               | -0.3185<br>1.1270  | -12.0281<br>6.7830+  | -8.0169<br>3.0652**  | -4.4884<br>2.1271*   | 1.1562<br>6.5281   |  |
| Ratio of preference margin: Uganda vs.<br>South Africa |  |  |  |  |  | -3.2874<br>10.8450   |
| Constant   | -5.0657<br>0.0792**  | -0.0230<br>0.6172  | 3.5646<br>0.3577**   | 0.1060<br>0.2060   | -2.1392<br>0.6261**  | 4.0646<br>0.8081**   |
| Year dummy variables                                   | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  |
| Commodity dummy variables                              | No   | No   | No   | No   | No   | No   |
| Commodity-country dummy variables                      | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  |
| Number of differences                                  | Two  | Two  | Two  | Two  | Two  | Three  |
| Estimator  | FE   | FE   | FE   | FE   | FE   | FE   |
| Observations   | 21,500   | 470  | 1,090  | 1,357  | 317  | 317  |
| R-squared  | 0.57   | 0.74   | 0.77   | 0.72   | 0.99   | 0.97   |
| <b>Elasticity of substitution</b>                      | <b>-0.3185</b><br><b>1.127</b>                               | <b>-12.0281</b><br><b>6.7830+</b>                            | <b>-8.0169</b><br><b>3.0652**</b>                            | <b>-4.4884</b><br><b>2.1271*</b>                             | <b>1.1562</b><br><b>6.5281</b>                               | <b>-3.2874</b><br><b>10.845</b>  |

Robust standard errors in parentheses. + significant at 10%; \* significant at 5%; \*\* significant at 1%

The difference of log of imports: COMESA vs. non-COMESA equals the log of Uganda's relative imports from COMESA vs. non-COMESA countries (1994, 2000, 2001, 2002, 2003). The *diff - in - diff*: COMESA vs. non-COMESA, Uganda vs. South Africa equals the log of relative imports from COMESA vs. non-COMESA countries in Uganda vs. South Africa (1994, 2001).

The log preference margin equals the log of (100 plus) Uganda's preferential tariff rate for COMESA countries (PTA tariff rate (for PTA countries) and customs-duty rate (for non-PTA countries) in 1994; and COMESA tariff rate in 2000, 2001, 2002, 2003) minus the log of (100 plus) Uganda's customs-duty rate for non-COMESA countries. The *ratio of preference margin: Uganda vs. South Africa* is the log difference between the preference margin in Uganda and the preference margin in South Africa.

Commodity dummy variables are set at the 6-digit HS product-code level. Commodity-country dummy variables are for the pairwise combinations of commodities and import-origin countries.

Broad HS codes are defined in appendix I.

**Table 8: Estimates of Trade Diversion Based on Uganda Imports from Non-COMESA countries in 1994, 2000, 2001, 2002, and 2003**

|   | (1)                 | (2)                | (3)                | (4)                 |
|---|---------------------|--------------------|--------------------|---------------------|
| Dependent variable                                | Log of imports      | Log of imports     | Log of imports     | Log of imports      |
| Log of MFN tariff                                 | -0.8052<br>0.2869** | -0.7438<br>0.3440* | -0.6540<br>0.3444+ | -0.64313<br>0.3458+ |
| Log of preferential tariff                        |                     | -0.1306<br>0.3838  | -0.1828<br>0.3837  | -0.3144<br>0.3884   |
| Log of preferential tariff *Log of COMESA imports |                     |                    | -0.0378<br>0.0376  |                     |
| Log of COMESA imports                             |                     |                    | 0.1961<br>0.1750   |                     |
| Log of preferential tariff *COMESA share          |                     |                    |                    | 0.0390<br>0.5702    |
| COMESA share in imports                           |                     |                    |                    | -1.1308<br>2.6690   |
| Constant  | 5.6131<br>1.3676**  | 5.9363<br>1.6379** | 5.7554<br>1.6311** | 6.4676<br>1.7069**  |
| Year dummy variables                              | Yes                 | Yes                | Yes                | Yes                 |
| Commodity-country dummy variables                 | Yes                 | Yes                | Yes                | Yes                 |
| Number of differences                             | One                 | One                | One                | One                 |
| Estimator   | FE                  | FE                 | FE                 | FE                  |
| Observations                                      | 62,302              | 62,302             | 62,302             | 62,302              |
| R-squared   | 0.78                | 0.78               | 0.78               | 0.78                |

Robust standard errors in parentheses. + significant at 10%; \* significant at 5%; \*\* significant at 1%

The *log of import* equals the log of Uganda's imports from non-COMESA countries (1994, 2000, 2001, 2002, 2003).

The log of MFN tariff equals the log of (100 plus) Uganda's tariff rate (1994, 2002, 2001, 2002, 2003). The *log of COMESA imports* equals the log of Uganda's imports from COMESA countries (1994, 2002, 2001, 2002, 2003) in that commodity. The COMESA share in imports equals the share of Uganda's imports from COMESA countries (1994, 2002, 2001, 2002, 2003) in that commodity.

Commodity dummy variables are set at the 6-digit HS product-code level. Commodity-country dummy variables are for the pairwise combinations of commodities and import-origin countries.



**Uganda's preferential tariff rates by 2-digit 1996 HS codes, 1994 and 2003**

| 2-digit HS codes |   | Preferential<br>Tariff Rates,<br>1994 | Preferential<br>Tariff Rates,<br>2003 | % Point Change<br>Preferential<br>Tariff Rates |
|------------------|---|---------------------------------------|---------------------------------------|--|
| 01               | LIVE ANIMALS                                | 4.67                                  | 4.00                                  | -0.67  |
| 02               | MEAT AND EDIBLE MEAT OFFAL                  | 21.12                                 | 16.00                                 | -5.12  |
| 03               | FISH, CRUSTACEANS & AQUATIC INVERTEBRATA    | 15.34                                 | 6.00                                  | -9.34  |
| 04               | DAIRY PRODS; BIRDS EGGS; HONEY; ED ANIM     | 14.60                                 | 13.20                                 | -1.40  |
| 05               | PRODUCTS OF ANIMAL ORIGIN, NESOI            | 14.41                                 | 5.88                                  | -8.53  |
| 06               | LIVE TREES, PLANTS, BULBS ETC.; CUT FLOWE   | 15.38                                 | 2.67                                  | -12.72   |
| 07               | EDIBLE VEGETABLES & CERTAIN ROOTS & TU      | 23.21                                 | 6.00                                  | -17.21   |
| 08               | EDIBLE FRUIT & NUTS; CITRUS FRUIT OR MEL    | 24.08                                 | 6.00                                  | -18.08   |
| 09               | COFFEE, TEA, MATE & SPICES                  | 20.52                                 | 4.19                                  | -16.33   |
| 10               | CEREALS                                     | 11.22                                 | 5.13                                  | -6.09  |
| 11               | MILLING PRODUCTS; MALT; STARCH; INULIN;     | 20.01                                 | 5.24                                  | -14.77   |
| 12               | OIL SEEDS ETC.; MISC GRAIN, SEED, FRUIT, PL | 10.00                                 | 3.84                                  | -6.16  |
| 13               | LAC; GUMS, RESINS & OTHER VEGETABLE SAI     | 8.00                                  | 4.00                                  | -4.00  |
| 14               | VEGETABLE PLAITING MATERIALS & PRODUC       | 22.18                                 | 4.00                                  | -18.18   |
| 15               | ANIMAL OR VEGETABLE FATS, OILS ETC. & W.    | 6.67                                  | 6.51                                  | -0.17  |
| 16               | EDIBLE PREPARATIONS OF MEAT, FISH, CRUS     | 19.68                                 | 6.00                                  | -13.68   |
| 17               | SUGARS AND SUGAR CONFECTIONARY              | 12.67                                 | 11.73                                 | -0.93  |
| 18               | COCOA AND COCOA PREPARATIONS                | 23.18                                 | 6.00                                  | -17.18   |
| 19               | PREP CEREAL, FLOUR, STARCH OR MILK; BAK     | 15.00                                 | 8.50                                  | -6.50  |
| 20               | PREP VEGETABLES, FRUIT, NUTS OR OTHER PI    | 15.34                                 | 9.95                                  | -5.39  |
| 21               | MISCELLANEOUS EDIBLE PREPARATIONS           | 18.00                                 | 9.33                                  | -8.67  |
| 22               | BEVERAGES, SPIRITS AND VINEGAR              | 55.90                                 | 62.67                                 | 6.76   |
| 23               | FOOD INDUSTRY RESIDUES & WASTE; PREP AI     | 5.88                                  | 5.83                                  | -0.05  |
| 24               | TOBACCO AND MANUFACTURED TOBACCO SI         | 55.00                                 | 96.00                                 | 41.00  |
| 25               | SALT; SULFUR; EARTH & STONE; LIME & CEMI    | 6.96                                  | 4.64                                  | -2.32  |
| 26               | ORES, SLAG AND ASH                          | 8.35                                  | 3.76                                  | -4.59  |
| 27               | MINERAL FUEL, OIL ETC.; BITUMIN SUBST; MI   | 6.72                                  | 4.34                                  | -2.38  |
| 28               | INORG CHEM; PREC & RARE-EARTH MET & RA      | 9.01                                  | 2.87                                  | -6.14  |
| 29               | ORGANIC CHEMICALS                           | 8.24                                  | 3.25                                  | -4.98  |
| 30               | PHARMACEUTICAL PRODUCTS                     | 0.00                                  | 0.00                                  | 0.00   |
| 31               | FERTILIZERS                                 | 0.00                                  | 0.00                                  | 0.00   |
| 32               | TANNING & DYE EXT ETC; DYE, PAINT, PUTTY    | 8.80                                  | 3.16                                  | -5.65  |
| 33               | ESSENTIAL OILS ETC; PERFUMERY, COSMETIC     | 35.15                                 | 14.43                                 | -20.72   |
| 34               | SOAP ETC; WAXES, POLISH ETC; CANDLES; DE    | 17.55                                 | 7.39                                  | -10.15   |
| 35               | ALBUMINOIDAL SUBST; MODIFIED STARCH; G      | 8.38                                  | 2.46                                  | -5.92  |
| 36               | EXPLOSIVES; PYROTECHNICS; MATCHES; PYR      | 18.63                                 | 6.00                                  | -12.63   |
| 37               | PHOTOGRAPHIC OR CINEMATOGRAPHIC GOOI        | 22.42                                 | 5.03                                  | -17.39   |
| 38               | MISCELLANEOUS CHEMICAL PRODUCTS             | 7.07                                  | 2.83                                  | -4.25  |
| 39               | PLASTICS AND ARTICLES THEREOF               | 6.43                                  | 5.21                                  | -1.21  |
| 40               | RUBBER AND ARTICLES THEREOF                 | 7.19                                  | 3.98                                  | -3.21  |
| 41               | RAW HIDES AND SKINS (NO FURSKINS) AND LI    | 10.68                                 | 4.00                                  | -6.68  |
| 42               | LEATHER ART; SADDLERY ETC; HANDBAGS E       | 13.59                                 | 6.00                                  | -7.59  |
| 43               | FURSKINS AND ARTIFICIAL FUR; MANUFACTU      | 18.33                                 | 5.71                                  | -12.62   |
| 44               | WOOD AND ARTICLES OF WOOD; WOOD CHAR        | 14.15                                 | 9.90                                  | -4.25  |
| 45               | CORK AND ARTICLES OF CORK                   | 12.00                                 | 6.00                                  | -6.00  |
| 46               | MFR OF STRAW, ESPARTO ETC.; BASKETWARE      | 10.00                                 | 6.00                                  | -4.00  |

Uganda's preferential tariff rates by 2-digit HS codes, 1994 and 2003 (cont.)

| 2-digit HS codes |   | Preferential<br>Tariff Rates,<br>1994 | Preferential<br>Tariff Rates,<br>2003 | % Point Change<br>Preferential<br>Tariff Rates |
|------------------|---|---------------------------------------|---------------------------------------|--|
| 47               | WOOD PULP ETC; RECOVD (WASTE & SCRAP) I                     | 1.84                                  | 3.37                                  | 1.53   |
| 48               | PAPER & PAPERBOARD & ARTICLES (INC PAPER)                   | 7.27                                  | 4.94                                  | -2.33  |
| 49               | PRINTED BOOKS, NEWSPAPERS ETC; MANUSCRIPTS                  | 5.42                                  | 2.32                                  | -3.11  |
| 50               | SILK, INCLUDING YARNS AND WOVEN FABRICS                     | 12.80                                 | 6.00                                  | -6.80  |
| 51               | WOOL & ANIMAL HAIR, INCLUDING YARN & WOVEN FABRICS          | 13.25                                 | 5.94                                  | -7.31  |
| 52               | COTTON, INCLUDING YARN AND WOVEN FABRICS                    | 19.09                                 | 7.57                                  | -11.52   |
| 53               | VEG TEXT FIB NESOI; VEG FIB & PAPER YNS & WOVEN FABRICS     | 11.87                                 | 5.86                                  | -6.01  |
| 54               | MANMADE FILAMENTS, INCLUDING YARNS & WOVEN FABRICS          | 11.02                                 | 10.06                                 | -0.95  |
| 55               | MANMADE STAPLE FIBERS, INCL YARNS & WOVEN FABRICS           | 12.43                                 | 6.09                                  | -6.35  |
| 56               | WADDING, FELT ETC; SP YARN; TWINE, ROPES                    | 14.52                                 | 4.23                                  | -10.29   |
| 57               | CARPETS AND OTHER TEXTILE FLOOR COVERINGS                   | 20.87                                 | 6.00                                  | -14.87   |
| 58               | SPEC WOV FABRICS; TUFTED FAB; LACE; TAPE                    | 17.56                                 | 6.00                                  | -11.56   |
| 59               | IMPREGNATED ETC TEXT FABRICS; TEXT ART F                    | 9.92                                  | 5.75                                  | -4.17  |
| 60               | KNITTED OR CROCHETED FABRICS                                | 15.00                                 | 5.88                                  | -9.12  |
| 61               | APPAREL ARTICLES AND ACCESSORIES, KNITTED OR CROCHETED      | 18.38                                 | 6.00                                  | -12.38   |
| 62               | APPAREL ARTICLES AND ACCESSORIES, NOT KNITTED OR CROCHETED  | 15.04                                 | 6.00                                  | -9.04  |
| 63               | TEXTILE ART NESOI; NEEDLECRAFT SETS; WORKS OF ART           | 14.66                                 | 6.81                                  | -7.84  |
| 64               | FOOTWEAR, GAITERS ETC. AND PARTS THEREOF                    | 15.00                                 | 5.86                                  | -9.14  |
| 65               | HEADGEAR AND PARTS THEREOF                                  | 20.45                                 | 6.00                                  | -14.45   |
| 66               | UMBRELLAS, WALKING-STICKS, RIDING-CROPS                     | 23.57                                 | 6.00                                  | -17.57   |
| 67               | PREP FEATHERS, DOWN ETC; ARTIF FLOWERS; ARTIFICIAL FLOWERS  | 30.00                                 | 6.50                                  | -23.50   |
| 68               | ART OF STONE, PLASTER, CEMENT, ASBESTOS                     | 13.26                                 | 5.83                                  | -7.43  |
| 69               | CERAMIC PRODUCTS  | 8.93                                  | 5.57                                  | -3.36  |
| 70               | GLASS AND GLASSWARE   | 12.36                                 | 5.37                                  | -6.99  |
| 71               | NAT ETC PEARLS, PREC ETC STONES, PR MET I                   | 20.13                                 | 5.77                                  | -14.36   |
| 72               | IRON AND STEEL  | 6.01                                  | 4.11                                  | -1.90  |
| 73               | ARTICLES OF IRON OR STEEL                                   | 12.42                                 | 3.88                                  | -8.53  |
| 74               | COPPER AND ARTICLES THEREOF                                 | 12.07                                 | 4.00                                  | -8.07  |
| 75               | NICKEL AND ARTICLES THEREOF                                 | 10.31                                 | 4.50                                  | -5.81  |
| 76               | ALUMINUM AND ARTICLES THEREOF                               | 5.71                                  | 4.03                                  | -1.68  |
| 78               | LEAD AND ARTICLES THEREOF                                   | 8.50                                  | 3.60                                  | -4.90  |
| 79               | ZINC AND ARTICLES THEREOF                                   | 8.18                                  | 3.20                                  | -4.98  |
| 80               | TIN AND ARTICLES THEREOF                                    | 7.44                                  | 3.00                                  | -4.44  |
| 81               | BASE METALS NESOI; CERMETS; ARTICLES THEREOF                | 10.00                                 | 3.96                                  | -6.04  |
| 82               | TOOLS, CUTLERY ETC. OF BASE METAL & PARTS THEREOF           | 11.28                                 | 4.00                                  | -7.28  |
| 83               | MISCELLANEOUS ARTICLES OF BASE METAL                        | 11.40                                 | 5.28                                  | -6.12  |
| 84               | NUCLEAR REACTORS, BOILERS, MACHINERY & ELECTRICAL EQUIPMENT | 4.89                                  | 0.44                                  | -4.45  |
| 85               | ELECTRIC MACHINERY ETC; SOUND EQUIP; TV SETS                | 10.83                                 | 3.45                                  | -7.38  |
| 86               | RAILWAY OR TRAMWAY STOCK ETC; TRAFFIC SIGNALS               | 2.58                                  | 0.00                                  | -2.58  |
| 87               | VEHICLES, EXCEPT RAILWAY OR TRAMWAY, & PARTS THEREOF        | 10.12                                 | 5.32                                  | -4.80  |
| 88               | AIRCRAFT, SPACECRAFT, AND PARTS THEREOF                     | 10.00                                 | 0.53                                  | -9.47  |
| 89               | SHIPS, BOATS AND FLOATING STRUCTURES                        | 14.18                                 | 1.29                                  | -12.88   |
| 90               | OPTIC, PHOTO ETC, MEDIC OR SURGICAL INSTRUMENTS             | 10.19                                 | 1.21                                  | -8.98  |
| 91               | CLOCKS AND WATCHES AND PARTS THEREOF                        | 23.05                                 | 6.00                                  | -17.05   |
| 92               | MUSICAL INSTRUMENTS; PARTS AND ACCESSORIES                  | 30.00                                 | 4.00                                  | -26.00   |
| 93               | ARMS AND AMMUNITION; PARTS AND ACCESSORIES                  | 9.41                                  | 4.00                                  | -5.41  |
| 94               | FURNITURE; BEDDING ETC; LAMPS NESOI ETC                     | 11.16                                 | 6.75                                  | -4.41  |
| 95               | TOYS, GAMES & SPORT EQUIPMENT; PARTS & ACCESSORIES          | 14.67                                 | 5.77                                  | -8.91  |
| 96               | MISCELLANEOUS MANUFACTURED ARTICLES                         | 20.84                                 | 5.02                                  | -15.82   |
| 97               | WORKS OF ART, COLLECTORS' PIECES AND ANTIQUITIES            | 7.14                                  | 6.00                                  | -1.14  |

Uganda's MFN tariff rates by 2-digit 1996 HS codes, 1994 and 2003

| 2-digit HS codes |  | MFN Tariff<br>Rates, 1994 | MFN Tariff<br>Rates, 2003 | Percentage Point<br>Change MFN Tariff<br>Rates |
|------------------|--|---------------------------|---------------------------|--|
| 01               | LIVE ANIMALS                                       | 6.67                      | 7.00                      | 0.33   |
| 02               | MEAT AND EDIBLE MEAT OFFAL                         | 30.00                     | 25.00                     | -5.00  |
| 03               | FISH, CRUSTACEANS & AQUATIC INVERTEBRATES          | 30.00                     | 15.00                     | -15.00   |
| 04               | DAIRY PRODS; BIRDS EGGS; HONEY; ED ANIMAL PR NESOI | 22.80                     | 22.20                     | -0.60  |
| 05               | PRODUCTS OF ANIMAL ORIGIN, NESOI                   | 15.88                     | 13.29                     | -2.59  |
| 06               | LIVE TREES, PLANTS, BULBS ETC.; CUT FLOWERS ETC.   | 17.69                     | 4.67                      | -13.03   |
| 07               | EDIBLE VEGETABLES & CERTAIN ROOTS & TUBERS         | 30.00                     | 15.00                     | -15.00   |
| 08               | EDIBLE FRUIT & NUTS; CITRUS FRUIT OR MELON PEEL    | 20.00                     | 15.00                     | -5.00  |
| 09               | COFFEE, TEA, MATE & SPICES                         | 25.15                     | 7.09                      | -18.06   |
| 10               | CEREALS  | 14.06                     | 9.44                      | -4.63  |
| 11               | MILLING PRODUCTS; MALT; STARCH; INULIN; WHT GLUTEN | 28.82                     | 11.86                     | -16.96   |
| 12               | OIL SEEDS ETC.; MISC GRAIN, SEED, FRUIT, PLANT ETC | 19.32                     | 6.73                      | -12.59   |
| 13               | LAC; GUMS, RESINS & OTHER VEGETABLE SAP & EXTRACT  | 21.67                     | 7.00                      | -14.67   |
| 14               | VEGETABLE PLAITING MATERIALS & PRODUCTS NESOI      | 28.18                     | 6.63                      | -21.56   |
| 15               | ANIMAL OR VEGETABLE FATS, OILS ETC. & WAXES        | 22.88                     | 11.68                     | -11.21   |
| 16               | EDIBLE PREPARATIONS OF MEAT, FISH, CRUSTACEANS ETC | 30.00                     | 15.00                     | -15.00   |
| 17               | SUGARS AND SUGAR CONFECTIONARY                     | 22.00                     | 17.93                     | -4.07  |
| 18               | COCOA AND COCOA PREPARATIONS                       | 30.00                     | 15.00                     | -15.00   |
| 19               | PREP CEREAL, FLOUR, STARCH OR MILK; BAKERS WARES   | 26.25                     | 17.50                     | -8.75  |
| 20               | PREP VEGETABLES, FRUIT, NUTS OR OTHER PLANT PARTS  | 30.00                     | 18.95                     | -11.05   |
| 21               | MISCELLANEOUS EDIBLE PREPARATIONS                  | 26.00                     | 14.93                     | -11.07   |
| 22               | BEVERAGES, SPIRITS AND VINEGAR                     | 29.05                     | 71.67                     | 42.62  |
| 23               | FOOD INDUSTRY RESIDUES & WASTE; PREP ANIMAL FEED   | 10.00                     | 14.30                     | 4.30   |
| 24               | TOBACCO AND MANUFACTURED TOBACCO SUBSTITUTES       | 50.00                     | 105.00                    | 55.00  |
| 25               | SALT; SULFUR; EARTH & STONE; LIME & CEMENT PLASTER | 14.29                     | 8.68                      | -5.61  |
| 26               | ORES, SLAG AND ASH                                 | 10.00                     | 6.59                      | -3.41  |
| 27               | MINERAL FUEL, OIL ETC.; BITUMIN SUBST; MINERAL WAX | 10.45                     | 9.10                      | -1.35  |
| 28               | INORG CHEM; PREC & RARE-EARTH MET & RADIOACT COMPD | 10.00                     | 5.03                      | -4.97  |
| 29               | ORGANIC CHEMICALS                                  | 9.80                      | 5.69                      | -4.10  |
| 30               | PHARMACEUTICAL PRODUCTS                            | 0.00                      | 0.00                      | 0.00   |
| 31               | FERTILIZERS  | 0.00                      | 0.00                      | 0.00   |
| 32               | TANNING & DYE EXT ETC; DYE, PAINT, PUTTY ETC; INKS | 15.43                     | 6.26                      | -9.18  |
| 33               | ESSENTIAL OILS ETC; PERFUMERY, COSMETIC ETC PREPS  | 28.53                     | 22.58                     | -5.95  |
| 34               | SOAP ETC; WAXES, POLISH ETC; CANDLES; DENTAL PREPS | 24.85                     | 13.52                     | -11.33   |
| 35               | ALBUMINOIDAL SUBST; MODIFIED STARCH; GLUE; ENZYMES | 11.54                     | 4.31                      | -7.23  |
| 36               | EXPLOSIVES; PYROTECHNICS; MATCHES; PYRO ALLOYS ETC | 21.25                     | 15.00                     | -6.25  |
| 37               | PHOTOGRAPHIC OR CINEMATOGRAPHIC GOODS              | 23.89                     | 12.40                     | -11.49   |
| 38               | MISCELLANEOUS CHEMICAL PRODUCTS                    | 10.18                     | 4.94                      | -5.23  |
| 39               | PLASTICS AND ARTICLES THEREOF                      | 12.17                     | 9.60                      | -2.57  |
| 40               | RUBBER AND ARTICLES THEREOF                        | 13.56                     | 6.92                      | -6.64  |
| 41               | RAW HIDES AND SKINS (NO FURSKINS) AND LEATHER      | 30.00                     | 7.00                      | -23.00   |
| 42               | LEATHER ART; SADDLERY ETC; HANDBAGS ETC; GUT ART   | 26.36                     | 15.00                     | -11.36   |
| 43               | FURSKINS AND ARTIFICIAL FUR; MANUFACTURES THEREOF  | 18.33                     | 13.86                     | -4.48  |
| 44               | WOOD AND ARTICLES OF WOOD; WOOD CHARCOAL           | 28.38                     | 17.29                     | -11.10   |
| 45               | CORK AND ARTICLES OF CORK                          | 12.86                     | 15.00                     | 2.14   |

## Uganda's MFN tariff rates by 2-digit 1996 HS codes, 1994 and 2003 (cont.)

| 2-digit HS codes |   | MFN Tariff<br>Rates, 1994 | MFN Tariff<br>Rates, 2003 | Percentage Point<br>Change MFN Tariff<br>Rates |
|------------------|---|---------------------------|---------------------------|--|
| 46               | MFR OF STRAW, ESPARTO ETC.; BASKETWARE & WICKERWRK  | 28.33                     | 15.00                     | -13.33   |
| 47               | WOOD PULP ETC; RECOVD (WASTE & SCRAP) PPR & PPRBD   | 12.11                     | 5.89                      | -6.21  |
| 48               | PAPER & PAPERBOARD & ARTICLES (INC PAPR PULP ARTL)  | 15.05                     | 9.21                      | -5.83  |
| 49               | PRINTED BOOKS, NEWSPAPERS ETC; MANUSCRIPTS ETC      | 8.42                      | 4.05                      | -4.37  |
| 50               | SILK, INCLUDING YARNS AND WOVEN FABRIC THEREOF      | 13.00                     | 15.00                     | 2.00   |
| 51               | WOOL & ANIMAL HAIR, INCLUDING YARN & WOVEN FABRIC   | 13.06                     | 14.78                     | 1.72   |
| 52               | COTTON, INCLUDING YARN AND WOVEN FABRIC THEREOF     | 21.34                     | 14.21                     | -7.13  |
| 53               | VEG TEXT FIB NESOI; VEG FIB & PAPER YNS & WOV FAB   | 12.26                     | 14.45                     | 2.19   |
| 54               | MANMADE FILAMENTS, INCLUDING YARNS & WOVEN FABRICS  | 14.77                     | 16.08                     | 1.32   |
| 55               | MANMADE STAPLE FIBERS, INCL YARNS & WOVEN FABRICS   | 15.91                     | 10.13                     | -5.78  |
| 56               | WADDING, FELT ETC; SP YARN; TWINE, ROPES ETC.       | 24.81                     | 8.27                      | -16.55   |
| 57               | CARPETS AND OTHER TEXTILE FLOOR COVERINGS           | 30.00                     | 15.00                     | -15.00   |
| 58               | SPEC WOV FABRICS; TUFTED FAB; LACE; TAPESTRIES ETC  | 20.37                     | 15.00                     | -5.37  |
| 59               | IMPREGNATED ETC TEXT FABRICS; TEX ART FOR INDUSTRY  | 17.20                     | 14.00                     | -3.20  |
| 60               | KNITTED OR CROCHETED FABRICS                        | 30.00                     | 14.53                     | -15.47   |
| 61               | APPAREL ARTICLES AND ACCESSORIES, KNIT OR CROCHET   | 20.00                     | 15.00                     | -5.00  |
| 62               | APPAREL ARTICLES AND ACCESSORIES, NOT KNIT ETC.     | 20.00                     | 15.00                     | -5.00  |
| 63               | TEXTILE ART NESOI; NEEDLECRAFT SETS; WORN TEXT ART  | 19.48                     | 15.04                     | -4.45  |
| 64               | FOOTWEAR, GAITERS ETC. AND PARTS THEREOF            | 30.00                     | 14.45                     | -15.55   |
| 65               | HEADGEAR AND PARTS THEREOF                          | 30.00                     | 15.00                     | -15.00   |
| 66               | UMBRELLAS, WALKING-STICKS, RIDING-CROPS ETC, PARTS  | 30.00                     | 15.00                     | -15.00   |
| 67               | PREP FEATHERS, DOWN ETC; ARTIF FLOWERS; H HAIR ART  | 30.00                     | 15.50                     | -14.50   |
| 68               | ART OF STONE, PLASTER, CEMENT, ASBESTOS, MICA ETC.  | 21.79                     | 14.33                     | -7.46  |
| 69               | CERAMIC PRODUCTS                                    | 22.50                     | 13.93                     | -8.57  |
| 70               | GLASS AND GLASSWARE                                 | 17.98                     | 12.95                     | -5.04  |
| 71               | NAT ETC PEARLS, PREC ETC STONES, PR MET ETC; COIN   | 21.47                     | 14.42                     | -7.05  |
| 72               | IRON AND STEEL                                      | 11.96                     | 7.07                      | -4.89  |
| 73               | ARTICLES OF IRON OR STEEL                           | 17.64                     | 6.65                      | -10.98   |
| 74               | COPPER AND ARTICLES THEREOF                         | 12.07                     | 7.00                      | -5.07  |
| 75               | NICKEL AND ARTICLES THEREOF                         | 10.31                     | 9.00                      | -1.31  |
| 76               | ALUMINUM AND ARTICLES THEREOF                       | 15.88                     | 7.65                      | -8.24  |
| 78               | LEAD AND ARTICLES THEREOF                           | 12.00                     | 6.30                      | -5.70  |
| 79               | ZINC AND ARTICLES THEREOF                           | 12.73                     | 5.60                      | -7.13  |
| 80               | TIN AND ARTICLES THEREOF                            | 12.22                     | 5.25                      | -6.97  |
| 81               | BASE METALS NESOI; CERMETS; ARTICLES THEREOF        | 10.00                     | 6.94                      | -3.06  |
| 82               | TOOLS, CUTLERY ETC. OF BASE METAL & PARTS THEREOF   | 20.62                     | 7.00                      | -13.62   |
| 83               | MISCELLANEOUS ARTICLES OF BASE METAL                | 20.00                     | 12.11                     | -7.89  |
| 84               | NUCLEAR REACTORS, BOILERS, MACHINERY ETC.; PARTS    | 11.31                     | 0.77                      | -10.54   |
| 85               | ELECTRIC MACHINERY ETC; SOUND EQUIP; TV EQUIP; PTS  | 18.58                     | 6.67                      | -11.91   |
| 86               | RAILWAY OR TRAMWAY STOCK ETC; TRAFFIC SIGNAL EQUIP  | 10.00                     | 0.00                      | -10.00   |
| 87               | VEHICLES, EXCEPT RAILWAY OR TRAMWAY, AND PARTS ETC  | 15.83                     | 10.24                     | -5.60  |
| 88               | AIRCRAFT, SPACECRAFT, AND PARTS THEREOF             | 10.00                     | 0.93                      | -9.07  |
| 89               | SHIPS, BOATS AND FLOATING STRUCTURES                | 17.35                     | 3.06                      | -14.29   |
| 90               | OPTIC, PHOTO ETC, MEDIC OR SURGICAL INSTRUMENTS ETC | 12.14                     | 2.39                      | -9.74  |
| 91               | CLOCKS AND WATCHES AND PARTS THEREOF                | 29.45                     | 15.00                     | -14.45   |
| 92               | MUSICAL INSTRUMENTS; PARTS AND ACCESSORIES THEREOF  | 30.00                     | 7.00                      | -23.00   |
| 93               | ARMS AND AMMUNITION; PARTS AND ACCESSORIES THEREOF  | 9.41                      | 7.00                      | -2.41  |
| 94               | FURNITURE; BEDDING ETC; LAMPS NESOI ETC; PREFAB BD  | 24.86                     | 15.17                     | -9.70  |
| 95               | TOYS, GAMES & SPORT EQUIPMENT; PARTS & ACCESSORIES  | 20.23                     | 14.07                     | -6.16  |
| 96               | MISCELLANEOUS MANUFACTURED ARTICLES                 | 27.25                     | 11.08                     | -16.17   |
| 97               | WORKS OF ART, COLLECTORS' PIECES AND ANTIQUES       | 10.00                     | 15.00                     | 5.00   |

**Uganda's imports by country of origin, 1994 and 2003**

(based on data at the commodity level)

| COMESA country  | imports, 1994<br>(thousand \$) | Rank | imports, 2003<br>(thousand \$) | Rank |
|-----------------|--------------------------------|------|--------------------------------|------|
| 1 Burundi       | 176.68                         | 53   | 25.44                          | 107  |
| 1 Dem.Rp.Congo  | 1,140.56                       | 39   | 298.98                         | 58   |
| 1 Djibouti      | 2,787.93                       | 26   | 0.00                           | 134  |
| 1 Egypt         | 951.83                         | 40   | 6,413.00                       | 30   |
| 1 Eritrea       | 0.00                           | 136  | 84.62                          | 84   |
| 1 Ethiopia      | 521.70                         | 44   | 53.58                          | 95   |
| 1 Kenya         | 186,784.85                     | 1    | 357,194.21                     | 1    |
| 1 Madagascar    | 0.00                           | 136  | 1.99                           | 129  |
| 1 Malawi        | 890.89                         | 41   | 300.13                         | 57   |
| 1 Mauritius     | 1,175.95                       | 36   | 2,479.16                       | 37   |
| 1 Namibia       | 0.00                           | 136  | 200.91                         | 64   |
| 1 Rwanda        | 74.46                          | 66   | 534.14                         | 53   |
| 1 Sudan         | 28.25                          | 85   | 10.08                          | 117  |
| 1 Swaziland     | 0.00                           | 136  | 9,999.18                       | 23   |
| 1 Zambia        | 1,831.85                       | 31   | 210.10                         | 63   |
| 1 Zimbabwe      | 2,217.92                       | 28   | 848.67                         | 49   |
| 0 Afghanistan   | 0.00                           | 136  | 93.52                          | 82   |
| 0 Algeria       | 1.67                           | 126  | 149.21                         | 71   |
| 0 Andorra       | 0.00                           | 136  | 29.44                          | 105  |
| 0 Antigua, Barb | 1.15                           | 132  | 1,071.14                       | 46   |
| 0 Argentina     | 48.46                          | 71   | 2,190.64                       | 38   |
| 0 Aruba         | 0.00                           | 136  | 3.20                           | 125  |
| 0 Asia Othr.ns  | 1,161.79                       | 37   | 2,512.74                       | 36   |
| 0 Australia     | 370.95                         | 47   | 31,973.42                      | 11   |
| 0 Austria       | 4,566.90                       | 21   | 1,647.10                       | 43   |
| 0 Azerbaijan    | 0.00                           | 136  | 14.35                          | 114  |
| 0 Bahrain       | 81.28                          | 64   | 178.39                         | 67   |
| 0 Bangladesh    | 7,429.17                       | 18   | 802.76                         | 50   |
| 0 Barbados      | 77.93                          | 65   | 0.00                           | 134  |
| 0 Belarus       | 0.00                           | 136  | 4.95                           | 122  |
| 0 Belgium       | 0.00                           | 136  | 23,047.56                      | 14   |
| 0 Belgium-Lux   | 15,338.12                      | 10   | 0.00                           | 134  |
| 0 Belize        | 34.61                          | 79   | 47.66                          | 97   |
| 0 Benin         | 20.47                          | 88   | 0.00                           | 134  |
| 0 Botswana      | 0.00                           | 136  | 123.76                         | 74   |
| 0 Br.Ind.Oc.Tr  | 13.23                          | 98   | 0.00                           | 134  |
| 0 Br.Virgin Is  | 6.73                           | 110  | 5.94                           | 120  |
| 0 Brazil        | 1,804.00                       | 32   | 3,111.65                       | 34   |
| 0 Bulgaria      | 159.07                         | 54   | 29.01                          | 106  |
| 0 Burkina Faso  | 29.40                          | 82   | 0.80                           | 132  |
| 0 Cambodia      | 1.63                           | 127  | 1.50                           | 131  |
| 0 Cameroon      | 18.38                          | 94   | 34.23                          | 102  |
| 0 Canada        | 14,343.23                      | 11   | 8,268.96                       | 26   |

**Uganda's imports by country of origin, 1994 and 2003 (cont.)**  
(based on data at the commodity level)

| COMESA country | imports, 1994<br>(thousand \$) | Rank | imports, 2003<br>(thousand \$) | Rank |
|----------------|--------------------------------|------|--------------------------------|------|
| 0 Cayman Is    | 1.52                           | 129  | 0.00                           | 134  |
| 0 Chad         | 18.82                          | 92   | 0.00                           | 134  |
| 0 Chile        | 0.56                           | 134  | 18.02                          | 112  |
| 0 China        | 9,196.41                       | 15   | 70,188.67                      | 8    |
| 0 Colombia     | 31.63                          | 80   | 7.34                           | 118  |
| 0 Congo        | 26.70                          | 87   | 443.58                         | 55   |
| 0 Cote Divoire | 38.81                          | 77   | 150.14                         | 70   |
| 0 Cuba         | 0.00                           | 136  | 2.68                           | 126  |
| 0 Cyprus       | 317.89                         | 48   | 74.21                          | 85   |
| 0 Czech Rep    | 20.17                          | 89   | 695.19                         | 52   |
| 0 Denmark      | 13,662.48                      | 12   | 10,953.22                      | 21   |
| 0 Dominica     | 18.99                          | 91   | 98.76                          | 79   |
| 0 Dominican Rp | 1.26                           | 130  | 0.00                           | 134  |
| 0 East Timor   | 82.55                          | 63   | 0.00                           | 134  |
| 0 Ecuador      | 2.97                           | 118  | 2.57                           | 127  |
| 0 Estonia      | 0.00                           | 136  | 46.04                          | 98   |
| 0 Finland      | 742.60                         | 42   | 1,909.34                       | 40   |
| 0 Fr.Guiana    | 4.03                           | 113  | 0.00                           | 134  |
| 0 Fr.Polynesia | 456.82                         | 45   | 0.00                           | 134  |
| 0 France+Monac | 11,508.95                      | 13   | 15,643.87                      | 18   |
| 0 Gambia       | 0.00                           | 136  | 53.55                          | 96   |
| 0 Georgia      | 0.00                           | 136  | 100.50                         | 77   |
| 0 Germany      | 31,290.16                      | 6    | 39,085.10                      | 10   |
| 0 Ghana        | 2.22                           | 121  | 53.61                          | 94   |
| 0 Gibraltar    | 18.66                          | 93   | 0.00                           | 134  |
| 0 Greece       | 6.29                           | 111  | 440.78                         | 56   |
| 0 Grenada      | 90.53                          | 61   | 20.16                          | 109  |
| 0 Guinea       | 48.77                          | 70   | 32.14                          | 104  |
| 0 Guyana       | 0.00                           | 136  | 25.00                          | 108  |
| 0 Honduras     | 65.81                          | 67   | 17.27                          | 113  |
| 0 Hong Kong    | 15,863.72                      | 9    | 16,789.43                      | 16   |
| 0 Hungary      | 297.21                         | 49   | 888.48                         | 48   |
| 0 Iceland      | 144.33                         | 55   | 714.26                         | 51   |
| 0 India        | 46,783.64                      | 4    | 102,079.14                     | 2    |
| 0 Indonesia    | 1,475.70                       | 34   | 4,684.74                       | 31   |
| 0 Iran-Islam.R | 89.34                          | 62   | 1,877.86                       | 41   |
| 0 Ireland      | 2,470.53                       | 27   | 3,625.53                       | 33   |
| 0 Israel       | 2,102.33                       | 29   | 4,027.72                       | 32   |
| 0 Italy        | 22,485.03                      | 8    | 23,286.53                      | 13   |
| 0 Jamaica      | 14.70                          | 97   | 97.07                          | 80   |
| 0 Japan        | 57,643.46                      | 3    | 90,320.65                      | 4    |
| 0 Jordan       | 442.76                         | 46   | 132.96                         | 73   |
| 0 Kazakhstan   | 0.00                           | 136  | 1,259.95                       | 44   |
| 0 Kiribati     | 42.45                          | 74   | 0.00                           | 134  |

**Uganda's imports by country of origin, 1994 and 2003 (cont.)**  
(based on data at the commodity level)

| COMESA country | imports, 1994<br>(thousand \$) | Rank | imports, 2003<br>(thousand \$) | Rank |
|----------------|--------------------------------|------|--------------------------------|------|
| 0 Korea D P Rp | 1,151.19                       | 38   | 96.10                          | 81   |
| 0 Korea Rep.   | 3,376.00                       | 22   | 6,947.52                       | 28   |
| 0 Kuwait       | 114.70                         | 57   | 2,130.10                       | 39   |
| 0 Lebanon      | 46.59                          | 72   | 64.18                          | 90   |
| 0 Lesotho      | 0.00                           | 136  | 11.10                          | 116  |
| 0 Libya        | 0.00                           | 136  | 5.59                           | 121  |
| 0 Luxemborg    | 0.00                           | 136  | 1.77                           | 130  |
| 0 Malaysia     | 1,784.65                       | 33   | 42,055.07                      | 9    |
| 0 Mali         | 0.52                           | 135  | 40.71                          | 101  |
| 0 Malta        | 10.96                          | 103  | 46.00                          | 99   |
| 0 Mauritania   | 15.03                          | 95   | 0.00                           | 134  |
| 0 Mexico       | 5.71                           | 112  | 165.78                         | 68   |
| 0 Montserrat   | 3.32                           | 116  | 18.09                          | 111  |
| 0 Morocco      | 2.11                           | 122  | 64.31                          | 89   |
| 0 Mozambique   | 12.75                          | 100  | 235.34                         | 61   |
| 0 Myanmar      | 28.21                          | 86   | 0.00                           | 134  |
| 0 N.Mariana Is | 1.72                           | 124  | 0.00                           | 134  |
| 0 Nauru        | 65.54                          | 68   | 0.00                           | 134  |
| 0 Nepal        | 3.77                           | 115  | 0.00                           | 134  |
| 0 Neth.Antiles | 291.44                         | 50   | 98.87                          | 78   |
| 0 Netherlands  | 9,576.52                       | 14   | 24,978.35                      | 12   |
| 0 Neutral Zone | 6.84                           | 109  | 0.00                           | 134  |
| 0 New Calednia | 104.87                         | 58   | 0.00                           | 134  |
| 0 New Zealand  | 95.87                          | 60   | 261.00                         | 60   |
| 0 Nicaragua    | 0.00                           | 136  | 2.40                           | 128  |
| 0 Niger        | 1.68                           | 125  | 60.77                          | 91   |
| 0 Nigeria      | 19.85                          | 90   | 482.06                         | 54   |
| 0 Niue         | 8.92                           | 105  | 0.00                           | 134  |
| 0 Norway,Sb,JM | 534.43                         | 43   | 1,029.62                       | 47   |
| 0 Oman         | 39.89                          | 76   | 284.47                         | 59   |
| 0 Pakistan     | 3,359.62                       | 23   | 18,277.27                      | 15   |
| 0 Palau        | 8.04                           | 108  | 0.00                           | 134  |
| 0 Panama       | 0.00                           | 136  | 32.43                          | 103  |
| 0 Papua N.Guin | 0.00                           | 136  | 4.00                           | 124  |
| 0 Philippines  | 8.86                           | 106  | 117.51                         | 75   |
| 0 Pitcairn     | 0.00                           | 136  | 64.36                          | 88   |
| 0 Poland       | 221.52                         | 51   | 188.65                         | 65   |
| 0 Portugal     | 30.46                          | 81   | 187.95                         | 66   |
| 0 Qatar        | 11.84                          | 102  | 154.85                         | 69   |
| 0 Rep.Moldova  | 0.00                           | 136  | 88.49                          | 83   |
| 0 Reunion      | 13.22                          | 99   | 0.00                           | 134  |
| 0 Romania      | 2.86                           | 119  | 67.68                          | 87   |
| 0 Russian Fed  | 29.21                          | 83   | 3,108.98                       | 35   |

**Uganda's imports by country of origin, 1994 and 2003 (cont.)**

(based on data at the commodity level)

| COMESA country | imports, 1994<br>(thousand \$) | Rank | imports, 2003<br>(thousand \$) | Rank |
|----------------|--------------------------------|------|--------------------------------|------|
| 0 South Africa | 6,488.50                       | 20   | 98,907.77                      | 3    |
| 0 Saudi Arabia | 1,222.27                       | 35   | 12,258.02                      | 19   |
| 0 Senegal      | 1.60                           | 128  | 69.99                          | 86   |
| 0 Sierra Leone | 0.85                           | 133  | 18.35                          | 110  |
| 0 Singapore    | 8,091.33                       | 17   | 11,360.32                      | 20   |
| 0 Slovakia     | 0.00                           | 136  | 145.80                         | 72   |
| 0 Slovenia     | 0.00                           | 136  | 55.32                          | 93   |
| 0 Somalia      | 104.03                         | 59   | 0.00                           | 134  |
| 0 Spain        | 3,029.99                       | 25   | 15,880.01                      | 17   |
| 0 Sri Lanka    | 0.00                           | 136  | 232.80                         | 62   |
| 0 St.Helena    | 0.00                           | 136  | 6.99                           | 119  |
| 0 Suriname     | 28.55                          | 84   | 0.64                           | 133  |
| 0 Sweden       | 3,275.89                       | 24   | 8,786.20                       | 24   |
| 0 Switz.Liecht | 6,598.45                       | 19   | 7,028.06                       | 27   |
| 0 Syrian A.R.  | 44.27                          | 73   | 100.72                         | 76   |
| 0 Tanzania     | 8,992.63                       | 16   | 10,783.41                      | 22   |
| 0 Thailand     | 1,915.47                       | 30   | 8,751.30                       | 25   |
| 0 Togo         | 40.33                          | 75   | 0.00                           | 134  |
| 0 Tokelau      | 8.70                           | 107  | 4.19                           | 123  |
| 0 Tonga        | 9.43                           | 104  | 0.00                           | 134  |
| 0 Trinidad Tbg | 3.98                           | 114  | 0.00                           | 134  |
| 0 Tunisia      | 14.86                          | 96   | 12.29                          | 115  |
| 0 Turkey       | 0.00                           | 136  | 1,820.40                       | 42   |
| 0 Turks,Caicos | 1.88                           | 123  | 0.00                           | 134  |
| 0 Tuvalu       | 60.34                          | 69   | 0.00                           | 134  |
| 0 Ukraine      | 178.48                         | 52   | 1,098.00                       | 45   |
| 0 Untd Arab Em | 35,383.55                      | 5    | 80,295.46                      | 6    |
| 0 Untd.Kingdom | 91,131.10                      | 2    | 86,318.43                      | 5    |
| 0 USA,PR,USVI  | 30,373.51                      | 7    | 78,040.89                      | 7    |
| 0 Venezuela    | 141.84                         | 56   | 60.17                          | 92   |
| 0 Viet Nam     | 3.30                           | 117  | 6,475.54                       | 29   |
| 0 Wallis Fut.I | 12.21                          | 101  | 0.00                           | 134  |
| 0 Westn.Sahara | 1.20                           | 131  | 0.00                           | 134  |
| 0 Yemen        | 35.63                          | 78   | 42.64                          | 100  |
| 0 Yugoslavia   | 2.39                           | 120  | 0.00                           | 134  |



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