

**THE NEW EAC CUSTOMS UNION: IMPLICATIONS FOR TRADE, INDUSTRY
COMPETITIVENESS, AND ECONOMIC WELFARE IN EAST AFRICA**

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Abstract

This paper investigates the economic impacts of the new East African Community customs union, using a quantitative model of East African trade based on simple Vinerian customs union theory. Simulation results indicate that Uganda's economic welfare would be significantly compromised if the new customs union establishes the common external tariff substantially above the current tariff level in Uganda, as presently planned. Kenya and Tanzania, however, would benefit because their current trade regimes are much more protectionist than Uganda's. Moreover, trade creation in both Kenya and Tanzania under the new customs union plan would promote industry competitiveness, but not in Uganda where "import discipline" would be reduced for domestic industry, jeopardizing benefits from recent trade policy reforms in the country. Simulation results also illustrate that regional trade liberalization on a nondiscriminatory basis, consistent with "open regionalism" advocated by the African Development Bank, would yield greater gains in economic welfare for all three East African countries than formation of the new customs union.

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1. Introduction

In recent years, the three major countries of East Africa -- Kenya, Tanzania, and Uganda -- have sought to strengthen their mutual economic and diplomatic ties through (re)establishment of the East African Community (EAC). Having put aside past differences in economic and social philosophies, the three major East African countries today are planning to embark upon a new EAC custom union by 2005, to promote concerted economic and political reform in the region; rehabilitation and further development of regional transportation networks, communications facilities, and other elements of the region's economic and social infrastructure; and closer economic relations with the rest of Africa, especially Eastern and Southern Africa under the Common Market for Eastern and Southern Africa (COMESA).¹

In addition to enabling intra-regional trade in goods on an unimpeded (i.e., zero tariff) basis, the new EAC customs union will establish a common external tariff (CET) for the three partner countries. It is proposed that the CET will consist of three tariff bands on imports of goods originating outside East Africa: zero percent (covering principally capital goods), 10 percent (covering principally intermediate goods), and 20 percent (covering principally "sensitive sector" products and consumer goods).² Also, the new customs union is expected to eliminate nontariff barriers enforced by the three East African countries on all regional and international trade.

The new EAC customs union presents economic uncertainties for the three regional trading partners, including when viewed against the "variable geometry" of the numerous, overlapping regional

¹ Two remaining East African countries, Burundi and Rwanda, are expected to join the new customs union in the future, when greater political stability returns to the two countries. Both Kenya and Uganda are currently members of COMESA, but only Kenya has formally joined the COMESA Free Trade Area. Tanzania formally withdrew from COMESA in 2000, citing concerns for lost tariff revenues and its primary regional interest in pursuing closer economic relations with members of the Southern African Development Community (SADC) as well as members of the East African Community (BBC 2000).

² EAC Secretariat (2002). The new EAC customs union is expected to involve only limited rules of origin, given that the common external tariff should eliminate many concerns for imports entering the preferential trading area through a member country that maintains a lower external tariff than other member countries. Also notably, as outlined in the treaty establishing the East African Community (EAC Secretariat, 2001), the new customs union is expected to incorporate elements on competition policy, customs cooperation, and simplification and harmonization of trade documentation and procedures. Such elements are difficult to represent in applied economic models, but their benefits may be important to regional integration arrangements among especially less developed countries (Burfisher et al., 2003).

integration schemes in Africa (Figure 1).³ Nominally, the East African countries share a number of similarities, resulting from their common location, climate, and development history (Table 1). However, they also differ importantly, particularly in regard to the protection afforded by their current trade regimes. Uganda maintains an appreciably more liberal trade regime than its two larger East African neighbors. Also, although transition to more broad-based tax systems has progressed considerably in the three East African countries, tariff revenues remain a more important element of fiscal revenues in Kenya and Tanzania than Uganda.⁴ Finally, the industrial capacity of Kenya is much larger than that of either Tanzania or Uganda, whose economies remain predominantly agrarian. Thus, concerns about the economic impacts of eliminating tariffs and other controls on a regional basis in East Africa have arisen in private and public sector circles, especially among owners of manufacturing and other enterprises in Uganda and Tanzania who fear being adversely affected under the new customs union by import competition from manufactures produced in neighboring Kenya.

The present paper is an outgrowth of such concerns arising especially in Uganda, where unilateral trade liberalization has been particularly central to the country's structural reform program (Collier and Reinikka 2001a). It seeks to quantify the impacts of the new EAC customs union on industry output and competitiveness in the three major East African countries. In addition, it investigates the potential impacts on national economic welfare and tariff revenues. If these impacts are not positive on a net basis, then the new customs union threatens the economic gains that Uganda and its two East African trading partners have enjoyed during the last decade as a consequence of unilateral trade liberalization, and the increased economic growth and attractiveness to foreign direct investment that this trade liberalization has engendered.⁵

This paper employs an economic framework that is sufficiently broad to encompass concerns for the economic impacts of the new EAC customs union in Kenya, Tanzania, and Uganda simultaneously. Specifically, it applies a simple Vinerian model of regional and international trade by the three countries to assess the economic impacts of the new customs union using recent trade and protection statistics for

³ For an introduction and overview of regional integration arrangements in Africa, see for instance Iqbal and Khan (1998) and ADB (2000).

⁴ COMESA Secretariat (2000) and Chen, Matovu, and Reinikka (2001).

highly disaggregated categories of traded goods in the three countries, including a large number of so-called sensitive sector products for which information was specially gathered on major inputs and production costs (EPRC 2001). In what follows, Section 2 discusses the simple trade model and its application to the customs union issue for the three East African countries. Then, Section 3 presents the model's quantitative estimates of the impacts of establishing the new EAC customs union on regional trade and industry competitiveness, economic welfare, and tariff revenues in the three countries. Section 3 also presents quantitative estimates of the impacts of concerted, unilateral reduction of tariffs in East Africa on a nondiscriminatory most-favored-nation (MFN) basis, indicating the comparative economic costs and benefits of pursuing a policy of "open regionalism," as advocated for Africa broadly by the African Development Bank (ADB 2000). Finally, Section 4 summarizes the principal findings and conclusions of the study, including as they apply to the interests of Kenya and Uganda in also joining a proposed COMESA customs union.

2. The EAC Trade Simulation Model

Basic Model

The EAC trade simulation model is a simple Vinerian model developed to quantify the economic impacts of the new EAC customs union.⁶ Although merchandise trade of EAC countries is the central focus, the EAC trade simulation model includes trade of the major European countries (as a bloc), United States, Japan, several major African countries, and other industrial countries and developing countries to yield a complete model of world trade in homogeneous goods.⁷ Also notably, the "small country" assumption is maintained throughout the model. Under this assumption, each country is assumed to be insufficiently large to affect its international terms of trade through variations in the volume of either its exports or imports.

⁵ After negative or near zero growth of foreign direct investment relative to gross fixed capital formation from 1985 to 1992, foreign direct investment in Uganda alone has risen since 1993, to over 20 percent of gross fixed capital formation in 1998 and 1999 (UNCTAD 2001b).

⁶ Viner (1950). On Vinerian and more general approaches to customs union theory, also see Meade (1955), Lipsey (1970), Lloyd (1982), Robson (1987), Pomfret (1988), and DeRosa (1998).

⁷ On completion of the model, simulation experiments found that international feedback effects on the EAC countries were minimal. Thus, in practice the EAC trade simulation model is simulated with international prices exogenous. This methodology has the added advantage of allowing the spreadsheet version of the

As described in the Appendix, the basic model is based on familiar (log-linear) import demand and export supply functions for traded goods, and it is disaggregated by detailed categories of primary products and manufactures covering all of merchandise trade. Market-clearing conditions for each category of traded goods determine international, regional, and national prices, and an equilibrium balance of payments condition determines the (real) exchange rate for each country in the model.⁸ In addition to determining changes in trade and tariff revenues, the model computes changes in economic welfare based on familiar notions of consumer surplus and producer surplus (Harberger 1954, 1971). The model also explicitly takes into account demands for intermediate goods in so-called sensitive sectors, that is, sectors producing intermediate and final manufactures widely considered politically sensitive in the East African region. It also takes into account nontariff barriers facing imports in the EAC region and the world at large.

Representing a Customs Union

Representing a customs union in the EAC trade simulation model requires special consideration of price determination in the model and additional equations to calculate trade creation, trade diversion, and changes in economic welfare.

Price Determination⁹

In the basic model, the international price of good k expressed in U.S. dollars, P_k^* , is determined largely independently of the behavior of consumers and producers in any single country or any small group of countries. Under a customs union, however, trade of member countries with non-member countries might be entirely diverted, and an independent intra-bloc price for good k , P_k^f (denominated in U.S. dollars), might be established so long as the intra-bloc price is established within acceptable bounds to

EAC trade simulation model to be implemented using the standard Microsoft Excel solver. For an introduction to computable economic models of international trade, see Francois and Reinert (1997).

⁸ The real exchange rate is defined as the aggregate price of nontraded goods in terms of traded goods in the model. In effect, the aggregate price of nontraded goods is the numeraire in the model. Corden (1971) and Dornbusch (1974) provide theoretical underpinnings for the model. On applied economic models for trade and development policy analysis that incorporate both traded and nontraded goods, and on the determination of nominal and real exchange rates in such models, see Robinson (1989), Francois and Reinert (1997), and Ginsburgh and Keyzer (1997).

⁹ The elements of regional price determination in the EAC trade simulation model take inspiration from similar elements in an applied economic model of a hypothetical customs union in South Asia developed by Hossain and Vousden (1998). See also DeRosa and Saber (2000).

producers and consumers who will continue to have recourse to markets for traded goods outside the customs union.

Two bounds, both contingent upon the comparative advantage of the new trading bloc, must be highlighted:

1. If good k lies within the comparative advantage of member countries (i.e., the trading bloc is expected to remain a net exporter of good k to the world), then P_k^r cannot fall below the international price P_k^* .
2. If good k lies outside of the comparative advantage of member countries (i.e., the trading bloc is expected to remain a net importer of good k from the world), then P_k^r cannot rise boundlessly above P_k^* .¹⁰

To enforce these two bounds on intra-bloc prices, the EAC trade simulation model sets intra-bloc prices based on considerations for the customs union's comparative advantage and common external tariff. On the one hand, if member countries as a bloc are net exporters of the good to the world, as for example in the case of coffee or tobacco for the East African countries, the intra-bloc price of exports is set equal to the international price of the traded good. In this instance, the customs union succeeds in lowering the price of imports to consumers in the preferential trading area if member countries previously imposed an import tariff on the good. On the other hand, if member countries as a bloc are net importers of the good from the world, then the intra-bloc price of exports is set equal to the international price multiplied by one plus the common external tariff rate. In this instance, the customs union succeeds in lowering import prices faced by consumers in the customs union only if the common external tariff adopted by the preferential trading area is lower in value than the initial MFN tariff in the individual member countries.

In the EAC trade simulation model, each country's balance of payments is valued at border prices, in U.S. dollars. Under the EAC customs union, all exports of member countries are valued at the intra-bloc price P_k^r . All imports of member countries, on the other hand, are valued using an import price index formed by the international price P_k^* and the intra-bloc price P_k^r for the given good. In the EAC trade simulation model, this price index is given by:

$$(1) \quad P_{k(j)}^r = P_k^{* (1-w_j)} P_k^{r w_j}$$

where

$$P_k^r = (1 + t_k^r) P_k^*,$$

and where $P_{k(j)}^r$ is the border price (in U.S. dollars) for imports of good k faced by member country j , P_k^r is the intra-bloc price (in U.S. dollars) for exports of good k produced in member countries, w_j is the base period ratio of intra-regional imports of good k to total imports of good k in member country j , and t_k^r is the common external tariff rate for good k in the customs union. The import price index in equation (5) reflects the fact that under the customs union, imports of many goods will continue to be supplied at the margin by non-member countries.

In summary, the foregoing intra-bloc price relationships under an EAC customs union posit (1) lower consumer prices and unchanged border prices for internationally competitive goods produced by EAC exporters, and (2) unchanged consumer prices but higher border prices for non-internationally competitive goods produced by EAC member country exporters. The higher border prices for non-internationally competitive goods include (per unit) forgone tariff revenues of importing member countries captured by noncompetitive exporters in partner member countries. Also in the latter case, the EAC trade simulation model assumes that, while member countries continue to import from non-member countries, member countries divert the entire volume of their exports of noncompetitive goods to partner member countries in response to the higher intra-bloc prices for their exports occasioned by the customs union, thereby maximizing their export revenues.

Trade Creation, Trade Diversion, and Economic Welfare

The EAC trade simulation model requires additional equations to quantify trade creation, trade diversion, and changes in economic welfare in member countries of the customs union. These equations are solved in a recursive manner, after the basic model is solved for equilibrium levels of trade, prices, and exchange rates.

Trade Diversion. On a bloc-wide basis, trade diversion (TD_k) of good k is equal to the decrease in demand by member countries for imports of good k from non-member countries. In the model, bloc-wide

¹⁰ The exact upper bound on P_k^r when good k lies outside the comparative advantage of the trading bloc is

trade diversion is computed simply as the increase in supply of exports of good k by member countries (j), $X_{k(j)}^s$, in response to higher intra-bloc prices for exports of noncompetitive goods ($k=nc$) produced by the trade bloc:

$$(2) \quad TD_{k=nc} = \sum_j [\Delta X_{k(j)}^s]$$

where Δ denotes change-in-variable between the base case (no customs union) and the customs union case.

Trade diversion for individual countries in the EAC trade simulation model is calculated on an *ad hoc* basis, because the model does not explicitly determine changes in bilateral trade. In the model, bloc-wide trade diversion is apportioned to member countries according to the share of each member country in total imports of good k under the customs union less the country's base period imports of good k from other member countries.

Trade Creation. Trade creation ($TC_{k(j)}$) of good k for an individual member country j occurs when the customs union causes the domestic price of imports of good k in country j , $P_{k(j)}^m$, to fall and imports of the good, $M_{k(j)}^d$, to rise. Thus, trade creation in the EAC model is computed simply as the increase in imports:

$$(3) \quad TC_{k(j)} = \Delta M_{k(j)}^d$$

when $\Delta P_{k(j)}^m$ is negative.

Economic Welfare. The impact of a customs union on economic welfare is divided into three components: changes in consumer surplus, changes in producer surplus, and forgone import tariff revenues.¹¹ Consumer surplus refers to the net benefit that consumers derive from purchases of a good at market prices at less than their marginal benefit from the good (i.e., the Harberger triangle formed by the area beneath the demand curve and above the market price). Producer surplus refers to earnings producers enjoy at market prices above their marginal variable costs (i.e., the Harberger triangle formed by the area

specified below.

above the marginal cost curve and below the market price). Finally, forgone tariff revenues are lost tariff revenues attributable to the margin of preference extended to member country exporters under the customs union.

On a combined basis, changes in consumer surplus and producer surplus, less forgone tariff revenues, equal the change in national economic welfare. The change in consumer surplus corresponds to the change in national welfare occasioned mainly by trade creation, the change in producer surplus corresponds to the change in national welfare occasioned mainly by trade diversion, and forgone tariff revenues correspond to the change in national welfare owing to forgone tariff revenues on duty-free imports that would otherwise have been captured by government and redistributed to domestic consumers in one form or another.¹²

Database and Parameter Values

Thirteen countries, including the three EAC countries, five other major COMESA countries, South Africa, and the major OECD countries, and 117 traded goods are identified individually in the EAC trade simulation model and its underlying database of international trade and protection statistics (Table 2 and Table 3). International trade statistics for 1999 are compiled from the COMTRADE database of the United Nations Statistics Division (UNSD 2001). Corresponding protection statistics detailing tariffs, taxes, and surcharges applied to imports, and the frequency of nontariff barriers to imports (circa 2000), are compiled from the UNCTAD Trade Analysis and Information System (UNCTAD 2001a). Table 4 provides an overview of the detailed data contained in the trade and protection database for Kenya, Tanzania, and Uganda. Notably, the model utilizes total charges on imports to represent base period tariffs, thereby incorporating not only MFN tariffs but also other taxes and surcharges applied to imports (especially by Tanzania).¹³

¹¹ On the fundamentals of consumer and producer surplus, see Harberger (1954, 1971). On their application in partial equilibrium trade models, see for instance Francois and Hall (1997).

¹² Note that forgone tariff revenues are captured by exporters of noncompetitive goods in EAC member countries as part of their producer surplus. Thus, while forgone tariff revenues are a loss to individual importing countries within the customs union, they are a gain to partner exporting countries within the trade bloc.

¹³ The protection statistics in Table 4 are average tariff levels for the detailed product categories in the EAC trade simulation model. The detailed tariff levels assumed in the model, inclusive of MFN tariffs and other

Table 5 identifies twenty products, along with their major inputs to production that are designated sensitive sector products in the model. Production of these products is considered to be at risk in Tanzania and Uganda because of expected intensified competition under the new EAC customs union from imports originating in Kenya. Accordingly information about costs of production for sensitive sector products is incorporated in the EAC trade simulation model, so that the model might take special account of the impacts of the new customs union on these products, namely, through consideration of not only structures of trade and protection in sensitive sectors but also production costs in these sectors. Unfortunately, resources for the present study were only sufficient to collect information for Uganda on production costs in sensitive sectors. This information, however, was applied to the same sectors in all three East African countries, after adjustment of the Ugandan cost statistics for the importance of intermediate costs in total value of manufactures in the three East African countries computed from individual input-output tables for the three countries, *circa* 1992 (Table 5).¹⁴ By this methodology, differences in relative costs (and technologies) of primary factors of production, especially labor, in the three EAC countries are reflected in the model.

The traded products that are designated as produced by internationally competitive sectors in the EAC trade simulation model are identified in Table 6. For these products, the EAC countries as a bloc are assumed to have sufficient comparative advantage for trade creation to occur readily under the new East African customs union. Within the model, traded products are designated as produced by internationally competitive sectors if total exports of a product by EAC member countries as a bloc are simulated to be greater than their combined total imports of the same product.¹⁵

The remaining parameters in the EAC trade simulation model consist of own-price elasticities of import demand and export supply (Table 7). Values of these parameters, which are assumed to be identical for all countries in the model, are *a priori* values based on estimates of price elasticities of demand and

ad valorem taxes and surcharges on imports, are reported in a technical appendix available from the authors.

¹⁴ While the Uganda input cost data are applied to sensitive sectors for all three East African countries in the EAC trade simulation model, they are not applied to the sensitive sectors for non-EAC countries in the model.

¹⁵ This determination of internationally competitive sectors is operationally convenient, and consistent with the underlying Vinerian theory of customs union that points to the importance of assessing whether the productive capacity of a trading bloc is sufficient to meet the bloc's total demands for a product. For

supply in international trade compiled by Stern et al. (1976), Goldstein and Khan (1985), and, for Africa, DeRosa (1992).

The EAC trade simulation model was constructed using VORSIM, software for construction and simulation of economic models in Microsoft Excel (Roninggen 2003).

3. Quantitative Results

Three EAC customs union scenarios are considered. The first two scenarios represent likely possible variants of the new customs union, while the third scenario represents an "ideal" variant of the new customs union. The first scenario (termed the "high" CET scenario) depicts adoption of the new East African customs union at levels of the common external tariff under discussion at end-2002, whereby a maximum tariff band would be set at 20 percent.¹⁶ The second scenario (termed the "low" CET scenario) assumes that the EAC common external tariff is set at a uniform level of 10 percent. Finally, the third scenario depicts open regionalism recommended by the African Development Bank, that is, the adoption of zero tariffs by EAC member countries on a nondiscriminatory (MFN) basis. Under each scenario, nontariff barriers are eliminated against imports from all countries.

The common external tariff levels under the three regional integration scenarios imply different degrees of trade liberalization in the EAC countries. Uganda and (following at some distance) Kenya already enjoy relatively liberal trade regimes (current average MFN tariff less than 20 percent), so establishing the EAC common external tariff at a maximum level of 20 percent (high CET scenario) might impose economic costs on both Kenya and Uganda, depending upon the product coverage of the maximum tariff band, the extent to which current MFN tariffs in the two EAC countries are less than 20 percent, and the extent to which the two countries either gain or lose from trade diversion under the new customs union. At the same time, the new EAC customs union should be expected to improve economic welfare in

comparison, however, revealed comparative advantage indices were also computed for the three EAC countries, using the familiar Balassa (1979) method, with virtually identical results.

¹⁶ The EAC Secretariat reports that the new customs union will adopt a maximum common external tariff of 20 percent (EAC Secretariat 2002). Indications have also been given that two lower tariff bands, zero and 10 percent, will also be established under the new customs union. For the principal EAC customs union scenario presented here, this tri-band scheme for the common external tariff is represented as follows: 20 percent tariff on "sensitive sector" products and all traded goods currently facing average tariffs greater than 20 percent in the three EAC countries, and 10 percent tariff on all other traded goods currently facing

Tanzania where the average MFN tariff is substantially higher than the proposed CET, about 33 percent. Finally, open regionalism should be expected to improve economic welfare in all three EAC countries because it implies significant trade liberalization in all three EAC countries, giving rise strictly to trade creation and no trade diversion in the East African region.

The simulation results found by the EAC trade simulation model are summarized in Table 8. They are contingent upon not only the base period of the analysis (*circa* 1999/2000) but also the highly stylized economic framework of the EAC trade simulation model. More sophisticated trade simulation models, for instance, might specify that traded goods are differentiated by their place of production (Armington 1969) or include important information about regional transportation costs.¹⁷ Another limitation of the model is its lack of information about actual levels of domestic consumption and production of not only traded goods but also "semi-tradable" goods, that is, goods that are not presently traded by Uganda and neighboring countries but might be traded under more liberal regional or international trade arrangements.¹⁸ Also, with wider adoption and longer experience with customs unions in developing regions, econometric or other empirical methods of analysis might be applied on an *ex post* basis in order to assess more reliably the impacts of regionalism in East Africa.¹⁹ Finally, like most other quantitative models of regional integration arrangements, the EAC trade simulation model does not capture possible long-term dynamic effects of customs unions, especially possible "investment creation" and "investment diversion" effects. These

non-zero tariffs in the three countries. Complete product-by-product details of the common external tariff under the first two EAC customs union scenarios are tabulated in an appendix available from the authors.

¹⁷ Armington trade models tend to find greater trade creation than trade diversion (DeRosa 1998). In addition to being somewhat simpler, the assumption of homogenous products underlying the Vinerian model was chosen for the EAC trade simulation model because it was deemed more appropriate to the nature of the traditional products produced and traded in the East African region. With regard to regional transportation costs, they may become important to Uganda's tariff revenues under the new EAC customs union in an "obverse" way. Whereas tariff revenues in Uganda are presently collected on a c.i.f. basis at the point of entry of imported goods to the country, under the new customs union Ugandan tariff revenues will continue to be collected on a c.i.f. basis, but at the point of entry of the imported goods to the customs union. In the case of the large volume of imported goods bound for Uganda whose first port of call in East Africa is Mombasa, Kenya, Ugandan tariff revenues will be reduced in proportion to the lower costs of transporting the imports to Mombasa rather than their final (inland) destination in Uganda. Of course, domestic prices of imports in Uganda should continue to reflect the full cost of transporting imports from their point of origin to their final destination point in Uganda.

¹⁸ Collier and Reinikka (2001b), for instance, contend that Ugandan participation in regional integration arrangements in East Africa would promote expansion of regional exports of food commodities by the country, many of which are currently hindered by prohibitive import restrictions imposed periodically by its regional trading partners, especially Kenya.

¹⁹ On *ex post* (empirical) versus *ex ante* (analytical) approaches to analyzing regional integration arrangements, see Mayes (1978).

dynamic effects might impact not only regional trade and economic growth but also national economic welfare and industry competitiveness in the EAC countries, through changes in the magnitude and location of investment in manufacturing and non-manufacturing sectors across countries in the East African region.²⁰

Customs Union Results

Industry Competitiveness

Expansion of manufacturing in EAC countries under the new customs union should be expected to come mainly at the expense of manufactures originating outside, not within, the region (*trade diversion*). What threatens EAC producers of import-competing manufactures and other traded goods more fundamentally is *trade creation*. The simulation results in Table 8 indicate that trade creation (as measured by increased imports) occurs mainly in Kenya and Tanzania, not Uganda. Thus, import-competing sectors are more likely to be “injured” in Kenya and Tanzania than in Uganda.²¹

In Uganda, import-competing firms in the manufacturing sector benefit (chiefly at the cost of Ugandan consumers) from the significantly increased protection adopted by the country on joining the new EAC customs union under the high CET scenario. This is clear in the case of imports of machinery and equipment and imports of “other manufactures.” Notably, producers of some sensitive sector products face appreciable increased competition from imports under the new customs union (especially Ugandan producers of cement and sensitive apparel products), because although protection is widely raised for sensitive sector products, protection for produced inputs used by the sensitive sectors also rises, and simultaneously the exchange rate appreciates by 2.6 percent. Overall, however, the increased protection causes real imports to decline across a wide range of manufactures and in total. Notably, the international competitiveness of Uganda's primary goods sectors (including coffee, fish products, and raw tobacco), which account for the bulk of the country's exports, is also adversely affected, through the indirect effect of

²⁰ See, for instance, Baldwin (1992) and Baldwin and Venables (1995).

²¹ In the discussion that follows the impacts of the new EAC customs union on industry competitiveness in Uganda and its two EAC trading partners are considered mainly with reference to the aggregate commodity categories indicated in Table 8. However, consideration is also given to the impacts of the new customs union on industry competitiveness for the sensitive sector products indicated in Table 5, based on detailed simulation results, reported in a technical appendix available from the authors, for the 117 commodity and product categories in the EAC trade simulation model.

the appreciation of the exchange rate. As a consequence, real exports in these sectors and in total also decline.

In contrast, in Kenya and Tanzania import-competing producers face increased competition from imports under the new East African customs union, though in both countries exporter producers enjoy substantial economic gains from the liberalization of the external trade regime. This is especially true in Tanzania, which currently enforces an average tariff that is two-to-three times higher than the average common external tariff proposed for the new customs union. Among import-competing producers, those in several sensitive sectors -- principally bar soap, auto batteries, cement, and nails in Kenya, and cement, apparel products, auto batteries, and bar soap in Tanzania -- face the greatest increase in competition from imports, raising the prospect of political opposition to the customs union from vested interests in these sensitive sectors. Stiffer import competition in Kenya and Tanzania also raises the prospect of greater pressure for economic adjustment in the two countries than in Uganda under the new customs union. This pressure for economic adjustment in Kenya and Tanzania, however, should be regarded in a positive vein, because it necessarily involves adjustment to more competitive and efficient, "world-class" production technologies and management methods by import-competing firms in the two countries.

Economic Welfare

In terms of overall economic welfare, the quantitative results indicate that Kenya and Tanzania gain from formation of the new EAC customs union by between 1.0 percent and 2.0 percent of GDP, while Uganda loses by between 0.5 percent and 1.0 percent of GDP.²² Interestingly, Kenya does capture the largest economic benefit from the new customs union, owing mainly to the country's current "dominance" of regional trade and regional manufacturing capacity. In contrast, the economic gains found for Tanzania derive principally from reduction of the country's current high protection. Uganda loses from formation of the new EAC customs union because under the high CET scenario the country must raise its current average external tariff rate by over 50 percent, from 10 percent to 16 percent. Such an outcome for Uganda would imply a substantial setback if not reversal of Uganda's trade policy reforms during the 1990s which have made the country one of the most open in Sub-Saharan Africa and have significantly improved the

²² Within the static framework of the EAC trade simulation model, the economic gains and losses reported in Table 8, measured in U.S. dollars, occur per annum, in perpetuity.

country's export performance.²³ Indeed, under the high CET scenario, while total exports of Kenya and Tanzania increase by \$46.8 million and \$54.9 million per annum, respectively, Uganda's total exports decline by \$5.8 million per annum, led principally by decreased traditional exports of processed foods (chiefly coffee and tea).²⁴

Also importantly, the simulation results indicate that the new EAC customs union would be trade diverting on an overall basis, by between \$318 million (high CET scenario) and \$274 million (low CET scenario). This outcome implies that if account were properly taken of the economic losses to exporters outside the East African region arising from the customs union's diversionary effects on trade, the new EAC customs union should be expected to lower rather than raise overall world economic welfare.

Tariff Revenues

Under the new customs union, all three EAC countries would experience considerable *forgone tariff revenues*, on the order of \$20-to-45 million, because of the elimination of tariffs on imports originating within the East African region. Reductions in *actual tariff revenues* are still higher, especially for Kenya and Tanzania under the "low" (10 percent) CET scenario, \$139 million and \$315 million respectively. The reduction in Uganda's actual tariff revenues under the low CET scenario is only \$14 million, because the common external tariff under this scenario closely approximates Uganda's current tariff regime.

Open Regionalism Results

Finally, it is important to emphasize that all three EAC countries would enjoy higher economic welfare under open regionalism, Kenya by nearly 3 percent of GDP, Tanzania by 2 percent of GDP, and

²³ As reported by Chen, Matovu, and Reinikka (2001), import tariffs in Uganda ranged from 10 percent to 350 percent as recently as 1992, compared to just zero to 15 percent today. For a broad overview of recent economic policy reform, including trade policy reform and liberalization, in Uganda, see Collier and Reinikka (2001a).

²⁴ The decline in primary product exports for Uganda under the high CET scenario points to a possible contradiction of the assertion by Collier and Reinikka (2001b) that regional integration arrangements in East Africa should be expected to stimulate Ugandan exports of food commodities. Although the present simulation results do not capture the possible stimulus of the new EAC customs union to Ugandan exports of "semi-tradable" food products, they do point to the importance of possible adverse indirect effects of regional integration arrangements, as emphasized in the seminal analysis of sectoral versus economywide policies on agricultural price incentives in developing countries by Krueger, Schiff, and Valdes (1988 and 1992). In the present case, Ugandan exports of traditional primary products are adversely affected because

Uganda by nearly 1 percent of GDP. This outcome is consistent with theoretical expectations. Moreover, under open regionalism imports increase most in manufactures, including in such sensitive product sectors as cement, auto batteries, roofing sheets, and bar soap. Also under open regionalism, exports increase most in processed foods and other primary products in all three countries (including in such sensitive product sectors as fish fillets and, in Uganda, roasted coffee and maize flour), and within the manufacturing sector, exports of “other manufactures” expand most in both Kenya and Tanzania.²⁵ Because the export sectors that expand most are typically relatively labor intensive, the simulation results for open regionalism suggest there is significant scope for productive employment of workers released by import-competing sectors under nondiscriminatory trade liberalization in the three major East African countries. Finally, that actual tariff revenues are reduced by the greatest amount under the open regionalism scenario should not be considered an economic loss to the EAC economies. Instead, it should be regarded as simply a transfer of resources from the government to consumers in each country, a transfer that might be “won” back in some measure by government through political renegotiation of the economic policies and social contracts that govern taxation and provision of public goods in each country.

4. Conclusion

This paper has sought to quantify the economic impacts of the new East African Community customs union on the three major countries in the region, Kenya, Tanzania, and Uganda. Using an applied model of East African trade based on simple Vinerian customs union theory, the analysis yields some interesting and relevant insights for current economic policy making in the East African region, albeit limited by not only shortcomings of the applied model but also still incomplete final details surrounding establishment of the new EAC customs union, especially the precise product coverage and levels of the tariff bands comprising the new common external tariff.

The quantitative results found by the EAC trade simulation model reveal what is well known from Vinerian theory, namely, that all members of a custom union are unlikely to enjoy net economic gains unless the common external tariff is set appreciably below the average tariff level of the most liberal

of the appreciation of the Ugandan exchange rate induced by the overall increase in protection in Uganda under the high CET scenario.

member of the customs union. Thus, the present analysis finds that Uganda's economic welfare might be significantly compromised if the new customs union establishes a common external tariff at an average level substantially above the current average tariff level in Uganda, as depicted in the high CET scenario in the present study. In contrast, Kenya and especially Tanzania benefit from such a high common external tariff because it would result in effective liberalization of the trade policy regimes of both countries, which are currently substantially more protectionist than Uganda.

The quantitative analysis also reveals that although import-competing sectors in Kenya and Tanzania should be expected to face greater costs of adjustment than in Uganda owing to intensified import competition (trade creation) under the new customs union, the international competitiveness of industries in the two countries should be improved by such "import discipline," if possible opposition to the new EAC customs union from vested interests in import-competing sectors, including such sensitive product sectors as cement, apparel products, and auto batteries, can be overcome by economic policy makers and exporters who would gain under the customs union. At the same time, Uganda faces the danger of reduced industry competitiveness because the new customs union poses a substantial risk of resulting in higher not lower tariff protection for the country's nascent import-competing industries. Indeed, joining the new EAC customs union at a high CET could reverse the progress of recent trade policy reforms in the country, jeopardizing the economic growth momentum that Uganda has enjoyed since the mid-1990s under reforms to its trade and other macroeconomic policies that have improved not only the competitiveness of import-competing industries but also indirectly, through adjustment to more realistic exchange rate levels, the competitiveness of primary exporting sectors.

The economic opportunity costs of pursuing the new EAC customs union are best gauged by comparing the outcome of the customs union scenarios to that of the open regionalism scenario. The quantitative analysis reveals that concerted unilateral trade liberalization by the three East African trading partners dependably yields economic benefits for all three countries, because it unequivocally reduces protection on an MFN basis. The new EAC customs union less dependably guarantees net economic benefits for all members of the customs union. Uganda is particularly at risk. Because the EAC customs union is ultimately likely to devolve to a compromise over the level of the common external tariff, the

²⁵ Also within the manufacturing sector of these two countries, under open regionalism exports of sensitive

country with the most liberal trade policy, Uganda, is most likely to lose economically -- unless the country expects significant offsetting economic gains from non-tariff related aspects of the new regional integration arrangement, for example, improvements to East African transportation and communications networks.

Finally, insights from the present analysis have possible implications for proposals that Uganda and Kenya join the envisioned COMESA customs union, scheduled to commence in 2004. Foremost, it should be recognized that once having formed the EAC customs union, the two countries cannot independently enter into new negotiations to establish a COMESA common external tariff. They must do so as a bloc, inclusive of Tanzania which no longer belongs to COMESA. Beyond this obstacle, and more fundamentally, officials in Uganda and possibly also Kenya should recognize that engaging in new negotiations to establish a common external tariff for the wider Eastern and Southern Africa region could compromise the relatively liberal stance of trade policy in two East African countries, if protection levels are generally higher in COMESA countries than EAC countries.

In a similar vein, policymakers in the three EAC countries should weigh carefully whether membership in either a COMESA customs union or a EAC customs union might hinder their more effective participation in WTO negotiations to liberalize world trade on an MFN basis -- or even continued unilateral trade liberalization in response to globalization and general pressures for greater economic development. Consistent with the African Development Bank's support for open regionalism, the findings of the present study would suggest that such nondiscriminatory approaches to continued trade liberalization would yield greater, more dependable economic gains for the three East African countries than active participation in either planned regional customs union.

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APPENDIX. Basic EAC Trade Simulation Model

Import Demand

Import demand ($M_{k(i)}^d$) for traded good k by each country i is given by the relationship:

$$(1) \quad M_{k(i)}^d = c_{k(i)}^m [P_{k(i)}^m - \sum_j (a_{jk(i)} P_{j(i)}^m)]^{\eta_{k(i)}}$$

where

$$P_{k(i)}^m = [P_k^* (1 + t_{k(i)}) / e_{(i)}]^{[1-f_{k(i)}]} [P_{k(i)}^{ntb}]^{f_{k(i)}}$$

and where $P_{k(i)}^m$ is an index of the domestic price of imports of good k in country i , a_{jk} is the amount of good j necessary to produce one unit of output of good k in country i , $\eta_{k(i)}$ is the own-price elasticity of import demand for good k in country i , P_k^* is the world price of good k denominated in U.S. dollars, $t_{k(i)}$ is the *ad valorem* MFN tariff rate for good k in country i , $e_{(i)}$ is the exchange rate of country i 's currency in terms of the U.S. dollar, $f_{k(i)}$ is the frequency of nontariff barriers facing imports of good k in country i , and $P_{k(i)}^{ntb}$ is the domestic price of imports of good k in country i covered by nontariff barriers. Equation (1) posits that import demand in each country i is a positive function of the exchange rate, the domestic price of imported inputs, and the (absolute value of the) price elasticity of import demand, and a negative function of the world price of good k , the tariff rate, the domestic price of imports covered by NTBs, and the frequency of nontariff barriers.

Equation (1) also posits that import demand in each country i is a negative function of the (imputed) domestic price of value-added $[P_{k(i)}^m - \sum_j (a_{jk(i)} P_{j(i)}^m)]$. This specification of import demand is not rigorously derived, but it points to the importance of the costs of intermediate goods in production and how these costs should be expected to influence international competitiveness, notably, in the determination of import demand (and export supply, as seen further below). At the same time, it should be noted that the model does not account explicitly for intermediate demands for goods implied by the specification of domestic value-added prices as determinants of import demand and export supply.²⁶

²⁶ The EAC trade simulation model does not explicitly differentiate between demands for intermediate and final goods in production and consumption. If produced inputs to production are considered Leontief-type

In the EAC trade simulation model, nontariff barriers are assumed to limit the supply of imports to the country imposing the barriers, and so they are assumed to have an equivalent effect as quantitative restrictions on imports. With sufficient information about domestic prices and quantities of imports covered by nontariff barriers, and the restrictiveness with which the barriers are enforced, baseline values of the $P_{k(i)}^{ntb}$ might be endogenously determined in the model. However, given only limited information about the coverage of imports affected by nontariff barriers and the degree of their restrictiveness, the model takes a simpler approach to determining each $P_{k(i)}^{ntb}$. Specifically, nontariff barriers are assumed to be highly restrictive (akin to import quotas), and the domestic price of imports covered by nontariff barriers is assumed to differ from the baseline price of similar imports not covered by nontariff barriers by a constant *a priori* proportional margin:

$$P_{k(i)}^{ntb} = (1 + \tau_{k(i)}) [\mathbf{P}_k^* (\mathbf{I} + \mathbf{t}_{k(i)}) / \mathbf{e}_{(i)}]$$

where $\tau_{k(i)}$ is the constant margin by which the price of imports covered by nontariff barriers differs from the baseline price of imports not covered by nontariff barriers in category k in country i , and where the other variables in the equation are evaluated at their baseline values (indicated by bold italics). Note that the parameter $\tau_{k(i)}$ may be either positive or negative in value, depending upon the precise character of the "similar" goods in category k , the nature of the nontariff barrier, and the precise magnitude of the tariff rate (the tariff rate itself may be prohibitive). In the absence of reliable information about domestic prices for the large number of countries in the model, zero is assumed to be an appropriate, "neutral" value for this parameter for all countries and all categories of traded goods.

goods, that is, goods demanded strictly in fixed proportion to output in each sector, then the EAC trade simulation model should be interpreted as implicitly assuming that demands for intermediate goods are satisfied solely by domestic producers of import-competing goods. Alternatively, if demands for Leontief-type intermediate goods were assumed satisfied mainly by producers of traded goods abroad, then more complete specification of the model would incorporate import demand equations of the form:

$$(1') \quad M_{k(i)}^d = c_{k(i)}^m \{ [P_{k(i)}^m - \sum_j (a_{jk(i)} P_{j(i)}^m)]^{n_{k(i)}} + \sum_j [a_{kj(i)} (X_{j(i)}^s - M_{j(i)}^d)] \}$$

Export Supply

Export supply ($X_{k(i)}^s$) of good k in each country i is given by the relationship:

$$(2) \quad X_{k(i)}^s = c_{k(i)}^x [P_{k(i)}^x - \sum_j (a_{jk(i)} P_{j(i)}^m)]^{\alpha_{k(i)}}$$

where

$$P_{k(i)}^x = P_k^* / e_{(i)},$$

and where $\alpha_{k(i)}$ is the own-price elasticity of export supply of good k in country i. Equation (2) states that export supply is a positive function of the world price of good k and the elasticity of export supply, and a negative function of the price of intermediate goods used to produce good k and the U.S. dollar exchange rate for the currency of country i. Analogously as in the specification of import demand above, equation (2) also states that export supply is a positive function of the (imputed) domestic price of value-added in each sector.

World Market Equilibrium

As mentioned at the outset of this section, all countries in the model are assumed to be "price-takers" in international markets. Thus, the world price of good k expressed in U.S. dollars, P_k^* , is largely determined independently of the behavior of consumers and producers in any single country, or any small group of countries. Specifically, each world price P_k^* is determined by the world market-clearing condition:

$$(3) \quad \sum_j M_{k(i)}^d = \sum_j X_{k(i)}^s.$$

That each country i may simultaneously import and export goods in the same traded goods category is assumed to reflect problems of aggregation or the influence of transportation costs for like goods imported

where $X_{j(i)}^s$ is the supply of exports of the jth good in country i. The implications of such an alternative specification of import demand are problematic without further development and testing of the EAC trade simulation model.

and exported from widely separated customs ports in the same country, rather than a departure from the model's underlying assumption of trade in homogeneous (i.e., undifferentiated) goods.²⁷

International Payments Equilibrium

Net earnings from trade in services and long-term international resource flows to finance trade imbalances are exogenous in the model. Thus, the condition for balance-of-payments equilibrium for each country i is given by

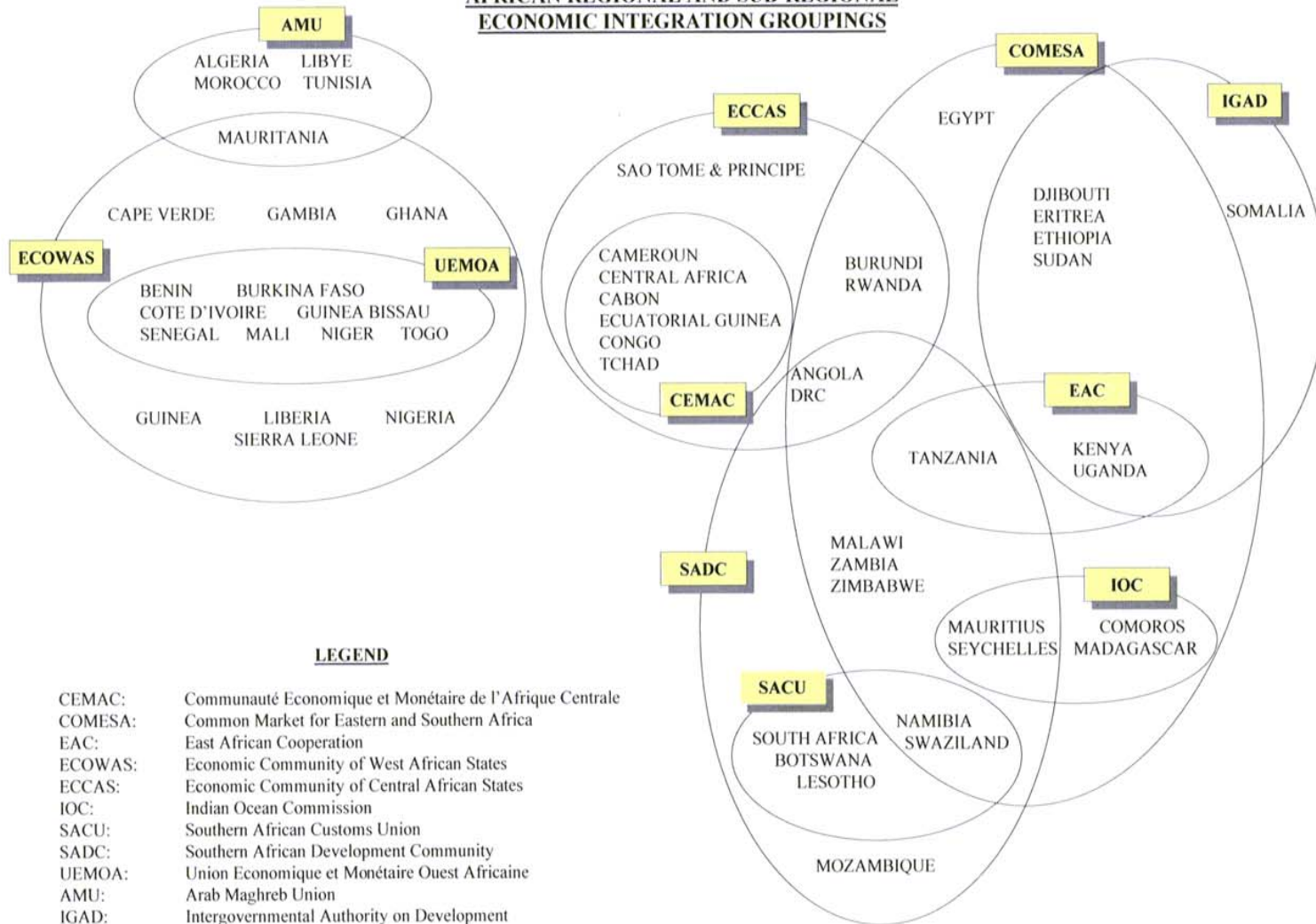
$$(4) \quad \sum_j (P_k^* X_{k(i)}^s - P_k^* M_{k(i)}^d) + K_{(i)}^* = 0$$

where $K_{(i)}^*$ is the sum of net services exports and net financial inflows from abroad, denominated in U.S. dollars. (If country i is in trade surplus, then $K_{(i)}^*$ is the sum of net services imports and net financial outflows to finance trade imbalances in other countries.)

The balance-of-payments condition in equation (4) is essential for "closure" of the model. With other equations in the model, the balance-of-payments condition also serves to determine the real exchange rate of each country.

²⁷ The case of U.S. petroleum exported from Alaska to Japan, while Eastern U.S. ports import petroleum from the Middle East, is a prime example. A popular alternative approach to accounting for "two-way trade" in world trade models is to incorporate the assumption of differentiated demands for similar products produced in different countries.

AFRICAN REGIONAL AND SUB-REGIONAL ECONOMIC INTEGRATION GROUPINGS



LEGEND

CEMAC:	Communauté Economique et Monétaire de l'Afrique Centrale
COMESA:	Common Market for Eastern and Southern Africa
EAC:	East African Cooperation
ECOWAS:	Economic Community of West African States
ECCAS:	Economic Community of Central African States
IOC:	Indian Ocean Commission
SACU:	Southern African Customs Union
SADC:	Southern African Development Community
UEMOA:	Union Economique et Monétaire Ouest Africaine
AMU:	Arab Maghreb Union
IGAD:	Intergovernmental Authority on Development

Table 1. Economic Indicators for East African Countries, 1998

Country	Population (Mill.)	Per Capita GNP (US \$)	GNP Growth (1965-98) (Percent)	Structure of Output			International Trade, Protection, and Tariff Revenues			
				Agr.	Ind. (Percent GDP)	Serv.	Goods Exports (U.S. \$ Mill.)	Goods Imports (U.S. \$ Mill.)	Average Import Tariff (Percent)	Import Tariff Revenues (Percent Total Rev.)
Kenya	29	350	2.7 (4.8)	26	16	58	2,013	3,029	18.0	13
Tanzania	32	220	6.5 (...)	46	15	39	589	1,365	34.4	13
Uganda	21	310	5.7 (...)	45	18	38	...	...	10.6	10
<u>Memorandum Items:</u>										
Sub-Saharan Africa	627	510	2.2 (2.6)	17	29	54	80,772	77,558	...	...
Developing Countries	5,011	1,250	1.0 (4.2)	13	35	52	1,322,422	1,273,403	...	13
World	5,897	4,890	1.3 (3.2)	4	32	62	5,397,430	5,304,372	...	7

Sources: COMESA Secretariat, "Revenue Implications of Elimination of Intra-COMESA Tariffs on Intra-COMESA Trade," 2000; UNCTAD, *Trade Information and Analysis System*, 2001; and World Bank, *World Development Indicators*, 2000.

Table 2. Country Coverage of the EAC Trade Simulation Model

<u>East African Community</u>	<u>Major Industrial Countries</u>
1. Kenya	10. Europe
2. Tanzania	11. Japan
3. Uganda	12. United States
<u>Other COMESA</u>	<u>Other</u>
4. Egypt	13. Available Rest of the World
5. Madagascar	
6. Mauritius	
7. Sudan	
8. Zimbabwe	
<u>Other Africa</u>	
9. South African Customs Union	

Notes: South African Customs Union is composed of Botswana, Lesotho, Namibia, South Africa, and Swaziland. Europe is composed of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom. Available rest of the world is composed of other reporting countries included in the U.N. Statistics Department, *Trade Analysis System*, 2001.

Table 3. Product Coverage of the EAC Trade Simulation Model

No.	Code	Description	Standard International Trade Classification, Rev. 3
PRIMARY PRODUCTS			
Primary Foods			
1	LIV	Live animals	00
2	MEA	Meat products	01
3	MKF	Fresh milk [=> 4]	02211
4	MKP	Milk products	02249
5	DAI	Other dairy products	02 - 025 - 02211 - 02249
6	FSM	Fresh salmon, trout [=> 7]	03412
7	FFL	Fish fillets	03451
8	FIS	Other fish products	03 + 08142 + 4111 - 03412 - 03451
9	MSD	Maize seeds [=> 26]	0441
10	CER	Other cereal grains	041 to 045 -0441
11	VEG	Vegetables	(0541 to 0545) + 05481
12	FRU	Fruits & nuts	57
13	CSG	Certain sugar, not flavored or colored [=> 35]	06129
14	SUG	Other sugar & honey	6 - 06129
15	MSB	Maize bran [=> 18]	08124
16	CTC	Cotton cake [=> 18]	08133
17	FML	Fish meal [=> 18]	08142
18	AFS	Animal feeds	08199
19	AFO	Other animal feed stuffs	08 – 08142 - 08124 - 08133 - 08199
20	SFS	Sunflower seeds [=> 23]	2224
21	OLS	Other oil seeds	22 - 2239 - 2224
Processed Foods			
22	CPO	Crude palm olean, stearin [=> 23, 61]	42229
23	EVO	Edible vegetable oil	4311
24	FPA	Palm fatty acid distillate [=> 61]	43131
25	ANV	Other animal & vegetable oils & fats	(091 + 4) - 4111 - 42229 - 4311 - 43131
26	MSF	Maize flour	04711
27	CEM	Other cereal meals, flours, & preparations	046 to 048 - 04711
28	PRV	Prepared vegetables	(0546 to 056) – 05481
29	PRF	Prepared fruits & nuts	58
30	CFB	Coffee beans [=> 31]	07111
31	CFR	Roasted coffee	0712
32	COF	Other coffee	71 - 07111 - 0712
33	TEA	Tea & spices	072 to 075
34	ICE	Ice [=> 7]	11101
35	CSD	Carbonated soft drinks	11102
36	NOA	Other nonalcoholic beverages	111 - 11101 - 11102
37	ALC	Alcoholic beverages	112
38	OTP	Other processed agricultural products	025 + 098 + 2239
Agricultural Raw Materials			
39	TOR	Raw tobacco	121
40	TOM	Tobacco manufactures	122

Table 3 (Cont.). Product Coverage of the EAC Trade Simulation Model

No.	Code	Description	Standard International Trade Classification, Rev. 3
41	HID	Hides & skins	21
42	RUN	Natural rubber	231
43	CTL	Lint cotton [=> 93]	2631
44	NAF	Other natural fibers	(261 to 265) + 268 - 2631
45	OTA	Other agricultural raw materials	29
Other Primary Products			
46	LIM	Lime [=> 104]	27322
47	CLY	Clay [=> 104]	27829
48	IRO	Iron ore [=> 104]	2815
49	CRF	Other Crude Fertilizer & Mineral Ores	27 + 28 - 27322 - 27829 - 2815
50	FRO	Furnace oil [=> 93]	334
51	MFL	Other Mineral Fuels	3 - 344
52	RLA	Refined lead and alloys [=> 75]	68512
53	NFM	Other Non-Ferrous Metals	68 - 68512
MANUFACTURES			
Chemicals			
54	CSA	Caustic soda [=> 61]	52262
55	OIC	Other organic & inorganic chemicals	51 + 52 - 52262
56	DYS	Chemical and dye stuffs [=> 93]	53114
57	INK	Printing ink [=> 115]	53321
58	DYE	Other dyeing & tanning materials	53 - 53114 - 53321
59	PHA	Pharmaceuticals	54
60	DFC	Drink flavor concentrates [=> 35]	55141
61	BSP	Bar soap	55411
62	TOI	Other toiletry & perfumes	55 - 55141 - 55411
63	MAF	Manufactured fertilizers	56
64	PSM	Plastic separator materials [=> 75]	58221
65	PLA	Other plastic materials & products	57 + 58 - 58221
66	OTC	Other chemical materials & products	59 + 232 + 266 + 267
Iron and Steel			
67	MSS	Milled steel sheets [=> 78]	67322
68	ZST	Zinc plated steel [=> 69]	67411
69	RGS	Roofing sheets	67413
70	MRD	Wire rods [=> 113]	67611
71	MAI	Metal angle irons [=> 110]	67686
72	MRT	Round metal tubing [=> 110]	67943
73	IRS	Other Iron & Steel	67686 - 67943
Machinery and Equipment			
74	INM	Industrial machinery	71 to 74
75	ABT	Automotive batteries	77812
76	ABC	Automotive battery cassings [=> 75]	77819
77	COM	Other computers & electrical machinery	75 to 77 - 77812 - 77819
78	WBR	Wheel barrows	78685

Table 3 (Cont.). Product Coverage of the EAC Trade Simulation Model

No.	Code	Description	Standard International Trade Classification, Rev. 3
79	TRA	Other transport equipment	78 + 79 - 78685
Other Manufactured Products			
80	PLU	Plumbing products & prefab buildings	81
81	LEA	Leather & travel goods	61 + 83
82	TUB	Round rubber tubing [=> 78]	62129
83	TYR	Tyres [=> 78]	62559
84	RUP	Other rubber products	62 - 62129 - 62559
85	WOO	Wood products	63
86	NPR	Newsprint [=> 115]	6411
87	TET	Tetra pak materials [=> 4]	64171
88	PCR	Paper cartons [=> 7]	64212
89	PBG	Paper bags [=> 26]	64214
90	PAP	Other paper products	64 - 64171 - 64212 - 64214
91	YRN	Yarn [=> 98]	#65162
92	WFI	Certain woven fabric/interlining/knitted rib [=> 101, 102]	#65221
93	WFS	Certain woven fabric/Bed sheets [=> 102]	#65222
94	THR	Thread [=> 101]	#65491
95	KNF	Knitted fabric [=> 101]	#65529
96	RFS	Rebounded foam sheets [=> 107]	#65719
97	QLT	Quilted fabric [=> 107]	#6574
98	NET	Fish nets	#65752
99	JBG	Jute bags [=> 113]	#65811
100	OBG	Other textile bags [=> 31]	#65819
101	SHT	Shirts	#8415
102	TEE	T-shirts	#8454
103	TEX	Other textiles & clothing	65 + 84 - #
104	CMT	Cement	66122
105	GLS	Glass containers [=> 35]	66511
106	NOM	Other non-metallic mineral products	66 - 66122 - 66511
107	MAT	Spring mattresses	82119
108	FRN	Other furniture	82 - 82119
109	FTW	Footwear	85
110	HBD	Hospital beds	8724
111	PEQ	Other professional equipment	87 + 88 - 8724
112	WMM	Welded metal mesh [=> 110]	##69351
113	NLS	Nails	##6941
114	MSP	Metal springs, leaves [=> 107]	##6994
115	NPS	Newspapers, periodicals	##89229
116	PLC	Plastic containers [=> 23, 98, 101]	##89319
117	MTL	Other metal & other manufactured products, n.e.s.	69 + 89 - ##

Source: EAC trade simulation model.

Notes: Negative sign (-) denotes "less." Terms in brackets "point" to sensitive sectors in which the indicated products are principal inputs.

Table 4. EAC Trade and Protection Database -- Summary Statistics

Product	Reporter Country	Exports 1999 (\$Mill.)	Imports 1999 (\$Mill.)	Tariff and Nontariff Barriers, 2000					
				Tariff and Other Charges (%)			Total Charges	NTBs (%)	
				MFN Range		MFN Average			
<u>Primary Products</u>	Kenya	1,302	854	7.4	- 25.1	17.1	15.9	4.0	
	Tanzania	365	431	9.8	- 21.0	16.6	31.0	8.2	
	Uganda	399	310	7.3	- 14.4	11.8	11.5	6.7	
Primary Foods	Kenya	228	159	10.0	- 22.0	14.9	14.9	13.2	
	Tanzania	93	136	14.5	- 25.0	22.8	30.2	21.3	
	Uganda	44	63	10.3	- 14.2	13.0	13.0	8.2	
Processed Foods	Kenya	699	168	11.6	- 37.2	23.1	23.1	0.1	
	Tanzania	123	119	13.9	- 25.0	22.1	40.1	8.4	
	Uganda	307	78	7.9	- 15.0	13.2	13.2	11.8	
Ag. Raw Materials	Kenya	216	46	7.2	- 14.5	17.6	12.6	2.5	
	Tanzania	120	33	7.5	- 9.0	11.7	25.0	3.2	
	Uganda	46	24	8.5	- 13.4	12.6	11.5	6.9	
Other Primary Prods.	Kenya	159	480	1.0	- 26.7	12.8	12.8	0.0	
	Tanzania	29	144	3.3	- 25.0	10.0	28.5	0.0	
	Uganda	2	144	2.3	- 15.0	8.4	8.4	0.0	
<u>Manufactures</u>	Kenya	348	1,918	3.6	- 37.7	16.2	16.2	0.3	
	Tanzania	50	1,154	3.5	- 23.6	15.3	34.0	3.9	
	Uganda	7	704	1.9	- 14.1	7.7	7.7	0.0	
Chemicals	Kenya	75	479	1.1	- 30.7	11.5	11.5	1.0	
	Tanzania	1	173	2.1	- 19.3	9.6	25.8	15.1	
	Uganda	1	149	3.0	- 13.9	7.1	7.1	0.0	
Iron & Steel	Kenya	25	131	5.0	- 40.0	13.1	13.1	0.0	
	Tanzania	0	62	5.0	- 25.0	17.4	37.4	0.0	
	Uganda	0	43	0.0	- 15.0	6.9	6.9	0.0	
Mach. & Equip.	Kenya	75	850	0.0	- 40.0	14.4	14.4	0.0	
	Tanzania	10	627	0.0	- 25.0	13.4	32.3	0.3	
	Uganda	4	278	0.0	- 12.3	5.0	5.0	0.1	
Other Manufs.	Kenya	173	458	8.2	- 40.0	26.0	26.0	0.3	
	Tanzania	39	291	6.8	- 25.0	20.9	40.6	0.1	
	Uganda	2	234	4.6	- 15.2	11.8	11.8	0.0	
<u>All Products</u>	Kenya	1,650	2,772	5.5	- 31.4	16.7	16.0	2.1	
	Tanzania	415	1,585	6.6	- 22.3	16.0	32.5	6.0	
	Uganda	407	1,014	4.6	- 14.2	9.8	9.6	3.4	

Sources: U.N. Statistics Department, *Trade Analysis System*, 2001; and UNCTAD, *Trade Analysis and Information System*, 2001.

Notes: Exports are to the "available world." Total charges are bound MFN tariffs plus other taxes and surcharges applied to imports.

Table 5. Sensitive Sector Products and Major Produced Inputs in the EAC Trade Simulation Model

Model No.	Code	Product Description	Major Produced Inputs (By model code)	Input Share in Total Costs of Intermediate Goods (Uganda)			Share of Intermediate Goods in Total Manufacturing Costs		
				Input 1	Input 2	Input 3	Kenya	Tanzania	Uganda
4	MKP	Milk products	MKF, TET	0.22	0.07	...	0.69	0.79	0.69
7	FFL	Fish fillets	FSM, PCR, ICE	0.74	0.05	0.02	0.69	0.79	0.69
18	AFS	Animal feeds	MSB, CTC, FML	0.45	0.14	0.24	0.69	0.79	0.69
23	EVO	Edible vegetable oil	SFS, CPO, PLC	0.05	0.81	0.13	0.69	0.79	0.69
26	MSF	Maize flour	MSD, PBG	0.52	0.10	...	0.69	0.79	0.69
31	CFR	Roasted coffee	CFB, OBG	0.57	0.08	...	0.69	0.79	0.69
35	CSD	Carbonated soft drinks	CSG, DFC, GLS	0.25	0.60	0.10	0.69	0.79	0.69
61	BSP	Bar soap	CPO, FPA, CSA	0.25	0.38	0.17	0.69	0.79	0.69
69	RGS	Roofing sheets	ZST	0.85	...	...	0.69	0.79	0.69
75	ABT	Automotive batteries	RLA, PSM, ABC	0.40	0.09	0.40	0.69	0.79	0.69
78	WBR	Wheel barrows	MSS, TUB, TYR	0.38	0.13	0.24	0.69	0.79	0.69
93	WFS	Bed sheets	CTL, FRO, DYS	0.50	0.10	0.15	0.69	0.79	0.69
98	NET	Fish nets	YRN, PLC	0.50	0.10	...	0.69	0.79	0.69
101	SHT	Shirts	WFI, WFS, PLC	0.07	0.59	0.14	0.69	0.79	0.69
102	TEE	T-shirts	WFI, THR, KNF	0.84	0.06	0.05	0.69	0.79	0.69
104	CMT	Cement	LIM, CLY, IRO	0.40	0.10	0.12	0.69	0.79	0.69
107	MAT	Spring mattresses	RFS, QLT, MSP	0.22	0.23	0.31	0.69	0.79	0.69
110	HBD	Hospital beds	MAI, MRT, WMM	0.15	0.16	0.22	0.69	0.79	0.69
113	NLS	Nails	MRD, JBG	0.60	0.05	...	0.69	0.79	0.69
115	NPS	Newspapers, periodicals	INK, NPR	0.15	0.73	...	0.69	0.79	0.69

Sources: EPRC (2001), Elbers (1999), Nicita and Olarreaga (2001), and Wobst (1998).

Table 6. Internationally Competitive Products in the EAC Trade Simulation Model

No.	Code	Description	Standard International Trade Classification, Rev. 3
1	LIV	Live animals	00
7	FFL	Fish fillets	03451
8	FIS	Other fish products	03 + 08142 + 4111 - 03412 - 03451
11	VEG	Vegetables	(0541 to 0545) + 05481
12	FRU	Fruits & nuts	57
16	CTC	Cotton cake [=> 18 (Animal feeds)]	08133
20	SFS	Sunflower seeds [=> 23 (Edible vegetable oil)]	2224
21	OLS	Other oil seeds	22 - 2239 - 2224
28	PRV	Prepared vegetables	(0546 to 056) – 05481
29	PRF	Prepared fruits & nuts	58
30	CFB	Coffee beans [=> 31 (Roasted coffee)]	07111
31	CFR	Roasted coffee	0712
32	COF	Other coffee	71 - 07111 - 0712
33	TEA	Tea & spices	072 to 075
39	TOR	Raw tobacco	121
41	HID	Hides & skins	21
43	CTL	Lint cotton [=> 93 (Woven fabric)]	2631
45	OTA	Other agricultural raw materials	29
49	CRF	Other Crude Fertilizer & Mineral Ores	27 + 28 - 27322 - 27829 - 2815
87	TET	Tetra pak materials [=> 4 (Milk products)]	64171
101	SHT	Shirts	8415
102	TEE	T-shirts	8454
104	CMT	Cement	66122

Source: EAC trade simulation model.

Notes: Internationally competitive products are products for which total exports by EAC member countries as a bloc exceed the bloc's total imports of the product. Negative sign (-) denotes "less." Terms in brackets "point" to sensitive sectors in which the indicated products are principal inputs.

Table 7. Own-Price Elasticities of Import Demand and Export Supply

Product Category	Import Demand	Export Supply
<u>Primary Products</u>		
Primary Foods	-0.75	0.75
Processed Foods	-0.75	0.75
Ag. Raw Materials	-0.75	0.50
Oth Primary Prods	-0.50	0.50
<u>Manufactures</u>		
Chemicals	-1.50	1.00
Iron & Steel	-1.50	1.00
Mach. & Equip.	-1.50	1.00
Other Manufs.	-1.50	1.00

Table 8. Trade and Welfare Effects under Alternative EAC Customs Union Arrangements and "Open Regionalism"
(Millions of U.S. Dollars, at 1999 Prices)

	Kenya (\$10,697 GDP)			Tanzania (\$9,035 GDP)			Uganda (\$6,447 GDP)			EAC (\$26,179 GDP)		
	CU-20%	CU-10%	MFN-0%	CU-20%	CU-10%	MFN-0%	CU-20%	CU-10%	MFN-0%	CU-20%	CU-10%	MFN-0%
<u>Percent Change in Real Exchange Rate (U.S.\$/Local Currency)</u>												
All Products	0.9	-1.9	-9.6	-12.0	-14.6	-21.3	2.6	0.2	-5.6	...	...	...
<u>Change in Real Exports</u>												
Primary Prods	3.8	27.4	92.9	36.7	44.1	64.7	-6.5	0.3	18.6	34.0	71.8	176.2
Pri Foods	-0.2	4.5	18.6	12.7	14.7	21.7	-0.3	0.6	3.6	12.1	19.7	43.8
Proc Foods	-1.4	12.1	55.0	12.7	15.7	24.1	-5.7	-0.3	13.6	5.7	27.4	92.6
Ag Raw Mats	-0.5	2.6	11.1	8.4	10.4	15.3	-0.6	0.0	1.4	7.3	12.9	27.8
Oth Pri Prods	5.9	8.3	8.2	2.9	3.4	3.7	0.0	0.0	0.1	8.9	11.8	12.0
Manufactures	43.0	38.6	39.9	18.2	17.1	18.3	0.8	0.7	0.4	62.0	56.5	58.6
Chemicals	8.4	9.3	8.1	0.4	0.4	0.4	0.1	0.1	0.1	8.8	9.8	8.6
Iron & Steel	3.2	3.3	2.9	0.2	0.2	0.2	0.0	0.0	0.0	3.4	3.4	3.0
Mach & Eq	10.3	9.1	8.0	2.6	2.7	2.6	0.4	0.4	0.2	13.3	12.3	10.8
Oth Manufs	21.1	16.9	20.9	15.0	13.8	15.2	0.3	0.2	0.1	36.5	31.0	36.3
Sensitive Prods	1.1	2.5	8.5	6.9	7.8	11.9	0.2	0.5	2.2	8.2	10.8	22.6
All Products	46.8	66.0	132.8	54.9	61.2	83.0	-5.8	1.0	19.0	96.0	128.3	234.9
<u>Trade Creation = Change in Real Imports</u>												
Primary Prods	8.3	9.1	12.3	-2.1	2.1	4.5	1.0	2.0	7.6	7.2	13.2	24.5
Pri Foods	3.6	2.0	2.9	-0.6	0.7	1.6	0.0	0.3	1.7	3.0	3.0	6.1
Proc Foods	0.1	7.0	8.4	1.1	5.6	6.8	-2.0	0.6	2.6	-0.9	13.3	17.7
Ag Raw Mats	2.3	1.4	1.1	0.0	-0.7	-0.5	1.1	0.7	1.1	3.5	1.4	1.7
Oth Pri Prods	2.3	-1.3	0.0	-2.6	-3.5	-3.3	1.9	0.3	2.2	1.6	-4.5	-1.0
Manufactures	76.4	81.9	120.5	48.7	54.2	78.5	-30.3	-19.0	11.4	94.9	117.1	210.4
Chemicals	1.0	-15.0	-5.7	-0.1	-5.1	-2.0	-3.3	-6.5	0.9	-2.5	-26.5	-6.7
Iron & Steel	7.1	2.0	4.8	5.3	6.4	7.9	-1.1	-1.6	0.6	11.2	6.8	13.2
Mach & Eq	34.2	23.7	41.3	27.8	16.2	30.0	-17.4	-15.7	-2.5	44.5	24.2	68.7
Oth Manufs	34.2	71.1	80.1	15.8	36.7	42.7	-8.4	4.8	12.4	41.7	112.6	135.2
Sensitive Prods	4.1	8.3	8.2	1.2	6.1	6.8	1.7	2.5	0.9	7.0	16.9	15.8
All Products	84.7	91.0	132.8	46.6	56.4	83.0	-29.2	-17.1	19.0	102.1	130.3	234.9
<u>Trade Diversion</u>												
Primary Prods	83.4	83.9	0.0	24.3	23.9	0.0	7.1	7.0	0.0	114.7	114.9	0.0
Pri Foods	8.5	8.6	0.0	10.7	10.4	0.0	0.9	0.8	0.0	20.1	19.8	0.0
Proc Foods	12.7	12.1	0.0	2.5	2.3	0.0	0.4	0.4	0.0	15.6	14.8	0.0
Ag Raw Mats	8.0	8.1	0.0	6.4	6.4	0.0	5.1	5.2	0.0	19.5	19.8	0.0
Oth Pri Prods	54.3	55.1	0.0	4.6	4.7	0.0	0.6	0.7	0.0	59.5	60.5	0.0
Manufactures	213.9	206.8	0.0	66.4	61.3	0.0	25.1	20.9	0.0	305.4	289.0	0.0
Chemicals	49.6	50.3	0.0	2.9	3.1	0.0	0.7	0.7	0.0	53.2	54.1	0.0
Iron & Steel	17.0	17.3	0.0	1.0	0.8	0.0	0.0	0.0	0.0	18.0	18.1	0.0
Mach & Eq	46.9	46.4	0.0	20.9	20.6	0.0	7.0	6.5	0.0	74.7	73.5	0.0
Oth Manufs	100.5	92.8	0.0	41.6	36.9	0.0	17.4	13.7	0.0	159.4	143.3	0.0

Table 8 (Cont.). Trade and Welfare Effects under Alternative EAC Customs Union Arrangements and "Open Regionalism"
(Millions of U.S. Dollars, at 1999 Prices)

	Kenya (\$10,697 GDP)			Tanzania (\$9,035 GDP)			Uganda (\$6,447 GDP)			EAC (\$26,179 GDP)		
	CU-20%	CU-10%	MFN-0%	CU-20%	CU-10%	MFN-0%	CU-20%	CU-10%	MFN-0%	CU-20%	CU-10%	MFN-0%
Sensitive Prods	2.5	2.6	0.0	1.9	1.5	0.0	0.1	0.1	0.0	4.5	4.2	0.0
All Products	297.3	290.7	0.0	90.6	85.2	0.0	32.1	27.9	0.0	420.1	403.9	0.0
<u>Net Trade Creation</u>												
Primary Prods	-75.1	-74.9	12.3	-26.4	-21.8	4.5	-6.0	-5.1	7.6	-107.5	-101.7	24.5
Pri Foods	-4.9	-6.7	2.9	-11.3	-9.8	1.6	-0.9	-0.4	1.7	-17.1	-16.9	6.1
Proc Foods	-12.6	-5.1	8.4	-1.5	3.3	6.8	-2.4	0.3	2.6	-16.5	-1.5	17.7
Ag Raw Mats	-5.6	-6.7	1.1	-6.3	-7.1	-0.5	-4.0	-4.5	1.1	-15.9	-18.3	1.7
Oth Pri Prods	-52.0	-56.4	0.0	-7.3	-8.2	-3.3	1.3	-0.4	2.2	-58.0	-65.0	-1.0
Manufactures	-137.5	-124.9	120.5	-17.6	-7.1	78.5	-55.3	-39.9	11.4	-210.5	-171.9	210.4
Chemicals	-48.6	-65.2	-5.7	-3.0	-8.2	-2.0	-4.0	-7.2	0.9	-55.6	-80.6	-6.7
Iron & Steel	-10.0	-15.3	4.8	4.2	5.6	7.9	-1.2	-1.6	0.6	-6.9	-11.3	13.2
Mach & Eq	-12.7	-22.7	41.3	6.9	-4.4	30.0	-24.4	-22.2	-2.5	-30.2	-49.2	68.7
Oth Manufs	-66.2	-21.6	80.1	-25.8	-0.2	42.7	-25.8	-8.9	12.4	-117.8	-30.7	135.2
Sensitive Prods	1.6	5.7	8.2	-0.7	4.6	6.8	1.6	2.5	0.9	2.5	12.7	15.8
All Products	-212.6	-199.7	132.8	-44.0	-28.9	83.0	-61.4	-45.0	19.0	-318.0	-273.6	234.9
<u>Change in Producer Surplus</u>												
Primary Prods	30.7	63.3	143.2	63.8	75.7	107.3	-8.6	0.4	24.9	85.9	139.4	275.4
Pri Foods	1.3	7.1	25.3	17.8	19.6	28.1	-0.3	0.6	3.3	18.8	27.2	56.8
Proc Foods	3.3	18.7	77.1	18.6	22.9	36.3	-7.3	-0.3	18.6	14.6	41.3	132.1
Ag Raw Mats	-0.1	6.2	23.5	18.9	23.5	34.6	-1.1	-0.1	2.8	17.7	29.6	60.8
Oth Pri Prods	26.2	31.4	17.3	8.5	9.7	8.3	0.1	0.2	0.1	34.8	41.3	25.8
Manufactures	97.7	70.5	38.4	26.4	20.8	16.5	1.9	1.5	0.5	126.1	92.7	55.4
Chemicals	17.3	17.1	8.4	0.6	0.6	0.4	0.2	0.2	0.1	18.0	17.9	8.8
Iron & Steel	5.5	5.6	2.7	0.2	0.2	0.2	0.0	0.0	0.0	5.7	5.8	2.9
Mach & Eq	22.0	17.1	8.3	4.1	4.1	2.9	0.9	0.8	0.3	27.0	22.0	11.5
Oth Manufs	52.9	30.6	19.0	21.5	15.9	13.1	0.9	0.5	0.1	75.3	47.0	32.2
Sensitive Prods	2.1	2.1	4.9	3.3	3.9	6.6	0.1	0.3	1.5	5.5	6.3	13.0
All Products	128.4	133.8	181.6	90.2	96.5	123.9	-6.7	1.9	25.3	212.0	232.1	330.8
<u>Change in Consumer Surplus</u>												
Primary Prods	13.6	12.3	18.2	-3.8	3.0	7.3	2.6	3.0	12.6	12.4	18.3	38.2
Pri Foods	5.5	3.1	4.5	-0.1	2.2	3.8	-0.1	0.5	2.4	5.3	5.8	10.7
Proc Foods	-0.3	10.1	12.1	2.1	9.9	11.8	-3.1	0.9	3.8	-1.3	20.9	27.6
Ag Raw Mats	3.4	2.0	1.6	0.1	-1.1	-0.9	1.7	1.0	1.7	5.1	2.0	2.4
Oth Pri Prods	5.0	-2.9	0.0	-5.9	-8.0	-7.4	4.1	0.5	4.8	3.2	-10.4	-2.5
Manufactures	60.8	62.0	90.7	44.7	45.4	65.8	-21.2	-14.3	8.1	84.3	93.1	164.6
Chemicals	0.7	-11.4	-4.6	0.2	-4.3	-1.7	-2.4	-4.7	0.6	-1.5	-20.5	-5.7
Iron & Steel	5.3	1.3	3.3	5.1	5.2	6.3	-0.5	-1.1	0.4	9.9	5.4	10.1
Mach & Eq	24.7	16.6	29.6	23.6	13.2	24.8	-12.6	-11.1	-1.7	35.6	18.6	52.7
Oth Manufs	30.1	55.5	62.4	15.9	31.4	36.3	-5.8	2.6	8.8	40.3	89.5	107.5

Table 8 (Cont.). Trade and Welfare Effects under Alternative EAC Customs Union Arrangements and "Open Regionalism"
(Millions of U.S. Dollars, at 1999 Prices)

	Kenya (\$10,697 GDP)			Tanzania (\$9,035 GDP)			Uganda (\$6,447 GDP)			EAC (\$26,179 GDP)		
	CU-20%	CU-10%	MFN-0%	CU-20%	CU-10%	MFN-0%	CU-20%	CU-10%	MFN-0%	CU-20%	CU-10%	MFN-0%
Sensitive Prods	1.3	2.5	2.5	0.1	1.7	1.9	0.6	0.9	0.3	2.0	5.1	4.7
All Products	74.4	74.3	108.9	40.9	48.4	73.1	-18.6	-11.3	20.8	96.7	111.4	202.7
<u>Forgone Tariff Revenue</u>												
Primary Prods	-10.2	-8.7	0.0	-9.0	-6.3	0.0	-14.1	-12.9	0.0	-33.3	-27.8	0.0
Pri Foods	-1.3	-1.0	0.0	-2.3	-1.3	0.0	-1.5	-1.2	0.0	-5.1	-3.5	0.0
Proc Foods	-2.5	-1.2	0.0	-3.4	-1.7	0.0	-1.8	-0.9	0.0	-7.7	-3.8	0.0
Ag Raw Mats	-0.8	-0.8	0.0	-0.7	-0.7	0.0	-0.5	-0.5	0.0	-2.0	-2.0	0.0
Oth Pri Prods	-5.5	-5.6	0.0	-2.7	-2.7	0.0	-10.2	-10.3	0.0	-18.5	-18.6	0.0
Manufactures	-35.0	-21.1	0.0	-21.3	-12.6	0.0	-20.7	-12.4	0.0	-77.0	-46.1	0.0
Chemicals	-5.9	-5.1	0.0	-3.0	-2.6	0.0	-3.5	-2.8	0.0	-12.4	-10.5	0.0
Iron & Steel	-1.8	-1.7	0.0	-0.9	-0.6	0.0	-2.1	-1.9	0.0	-4.8	-4.3	0.0
Mach & Eq	-7.2	-4.9	0.0	-5.0	-3.6	0.0	-2.9	-1.9	0.0	-15.1	-10.4	0.0
Oth Manufs	-20.1	-9.3	0.0	-12.3	-5.7	0.0	-12.2	-5.8	0.0	-44.6	-20.9	0.0
Sensitive Prods	-0.5	-0.3	0.0	-0.8	-0.4	0.0	-0.7	-0.3	0.0	-2.0	-1.0	0.0
All Products	-45.2	-29.8	0.0	-30.3	-18.9	0.0	-34.8	-25.2	0.0	-110.3	-73.9	0.0
<u>Change in Economic Welfare</u>												
Primary Prods	34.1	66.9	161.5	51.1	72.4	114.6	-20.1	-9.5	37.5	65.0	129.9	313.6
Pri Foods	5.5	9.2	29.8	15.4	20.5	31.9	-1.9	-0.1	5.7	19.0	29.6	67.4
Proc Foods	0.4	27.5	89.2	17.4	31.2	48.1	-12.2	-0.3	22.4	5.6	58.4	159.7
Ag Raw Mats	2.5	7.4	25.1	18.3	21.8	33.7	0.0	0.4	4.5	20.8	29.6	63.2
Oth Pri Prods	25.6	22.9	17.4	-0.1	-1.0	0.9	-6.0	-9.5	4.9	19.6	12.3	23.2
Manufactures	123.5	111.3	129.1	49.8	53.6	82.3	-39.9	-25.2	8.6	133.4	139.7	219.9
Chemicals	12.1	0.6	3.8	-2.3	-6.3	-1.3	-5.7	-7.3	0.6	4.2	-13.1	3.1
Iron & Steel	9.0	5.2	6.1	4.3	4.7	6.5	-2.6	-3.0	0.4	10.8	6.9	12.9
Mach & Eq	39.5	28.7	37.9	22.6	13.7	27.7	-14.6	-12.2	-1.4	47.6	30.2	64.2
Oth Manufs	62.9	76.8	81.3	25.1	41.5	49.3	-17.1	-2.7	9.0	70.9	115.6	139.6
Sensitive Prods	2.9	4.3	7.4	2.6	5.2	8.5	0.1	0.9	1.8	5.6	10.4	17.7
All Products	157.6	178.3	290.5	100.8	126.0	196.9	-60.0	-34.7	46.1	198.4	269.6	533.5
(% GDP)	1.5	1.7	2.7	1.1	1.4	2.2	-0.9	-0.5	0.7	0.8	1.0	2.0
<u>Change in Actual Tariff Revenues</u>												
All Products	-74.0	-139.3	-356.5	-270.6	-314.6	-436.3	8.6	-13.6	-74.6	-336.0	-467.5	-867.3
(% GDP)	-0.7	-1.3	-3.3	-3.0	-3.5	-4.8	0.1	-0.2	-1.2	-1.3	-1.8	-3.3

Source: EAC trade simulation model.

Notes: CU-20% = 20 percent CET for all sensitive sector products and products for which average current EAC tariffs are 20 percent or higher. NTBs eliminated for all imports.

CU-10% = 10 percent CET for all products. NTBs eliminated for all imports.

MFN-0% = Open regionalism, no tariffs or NTBs for all imports.