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# **The Impact of ROO on Africa's Textiles and Clothing Trade under AGOA \*\*\***

Terrie L. Walmsley\* and Sandra A. Rivera\*\*  
Center for Global Trade Analysis,  
Purdue University

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\*Corresponding author: Co-Director, Center for Global Trade Analysis, Department of Agricultural Economics -Purdue University, West Lafayette IN 47907, U.S. ; (765)494-5837; [twalmsle@purdue.edu](mailto:twalmsle@purdue.edu)  
\*\*Visiting Scholar, Center for Global Trade Analysis through the Office of Economics, U.S. International Trade Commission, [srivera@usitc.gov](mailto:srivera@usitc.gov)

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## I. Introduction

Bilateral trade agreements have become more prevalent since the end of the Uruguay round, leading to continuing uncertainty about future multilateral trade negotiations. While bilateral negotiations could potentially lead to welfare improvements for the economies involved, often these agreements are hampered by exceptions and restricting rules which reduce these welfare gains considerably. The ROO clauses which permeate many of the current bilateral agreements are an example of such a restriction which could significantly reduce the impact of these agreements. Current research suggests that these ROO could reduce or eliminate completely the gains from bilateral agreements.

Despite evidence that ROO could have a substantial impact on gains from trade agreements, there has been very little research undertaken to include these rules in our analysis of bilateral trade agreements. This is not surprising since the incorporation of such rules and the way in which these rules cause agent's to significantly alter their behavior is difficult to model.

In this paper, we model how the African Growth Opportunity Act (AGOA) affects welfare in the regional areas of Africa compared to other world regions. The paper follows the earlier work by Rivera, Agama and Dean (2003), with one important addition: ROO constraints are explicitly executed into the data base and model. Our aim is therefore to examine not only how this agreement is likely to affect the African and US economies but also how the incorporation of ROO affects these welfare gains to Africa and the U.S.. Mattoo *et al.* (2002) argue that much of the impact of AGOA is linked to the ROO requirements that are to be kept in place until September 2004.<sup>1</sup> The incorporation of ROO into the analysis of AGOA therefore enables the results to be viewed more credibly.

Following the introduction, we examine in more detail the history behind the AGOA agreement. Then in section 3, the methodology is outlined including the modifications made to the model and the data. We also outline the experiments and the shocks undertaken. In section 4, the effects of the AGOA agreement are examined. We compare the impact on the African economies with and without taking the ROO clauses into account. In section 5, some policy implications and conclusions are drawn from this analysis.

While this paper takes an initial step towards modeling ROO clauses in a bilateral agreement, this research and the modeling of ROO is still in its infancy. Further work still needs to be undertaken to examine the decision making process of and the costs to producers of altering

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<sup>1</sup> For a fuller discussion of relevant literature, see Sandra Rivera, Laurie-Ann Agama and Judith Dean, "Africa Beyond 2005: Understanding the Impact of Eliminating NTBs and tariffs on Textile and Clothing," presented at the 6<sup>th</sup> Annual Conference on Global Trade Analysis, June 12-14, 2003, The Hague, The Netherlands. Full text available at [www.gtap.org](http://www.gtap.org).

the suppliers of their intermediate inputs to be ROO compliant.

## II. Background to AGOA

The AGOA was implemented as part of the U.S. Trade Act of 2000; in the same legislation, the Caribbean Basin Trade Preference Act (CBTPA) was also enacted. CBTPA and AGOA have very similar although not identical provisions. The general intention of AGOA was to provide the developing economies increased access to U.S markets, and in particular the clothing market, in exchange for making progress toward a market economic principles. To be eligible for the unilateral program, countries must show the U.S. that they are making progress toward a market-based economy, free trade, rule of law and protection of worker rights, and economic policies that fight poverty. Although no country is expected to enact all said changes, according to U.S. policy makers, “these criteria have been embraced by the vast majority of African nations.”<sup>2</sup> This annual determination is announced by the White House annually at the end of each year.<sup>3</sup>

As such this unilateral program provides for duty-free and quota-free treatment for certain products imported from eligible Sub-Saharan Africa (SSA).<sup>4</sup> Of interest to this paper, the AGOA agreement provides zero tariffs and quota free access to the U.S. market for clothing made in eligible SSA countries from U.S. fabric, yarn and thread. The Act also allows for the growth of clothing made from fabric produced in eligible SSA countries until September 30, 2008.<sup>5</sup> Under a *Special Rule*, lesser developed beneficiary countries (LDBCs) have duty-free U.S. market access for clothing made from fabric and yarn originating anywhere in the world until September 30, 2004.<sup>6</sup> This original agreement is referred to as AGOA I.

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<sup>2</sup> Other areas of interest include elimination of barriers to U.S. trade and investment, protection of intellectual property, efforts to combat corruption, policies to reduce poverty, increasing availability of health care and educational opportunities, protection of human and worker rights; and elimination of certain child labor practices. For more information, see [www.agoa.gov/eligibility/eligibility.html](http://www.agoa.gov/eligibility/eligibility.html).

<sup>3</sup> For example, in December 2003 Angola was removed from the list of SSA beneficiary countries and the Central African Republic and Eritrea were added. For more detail, see [www.whitehouse.gov/news/releases/2003/12/20031230-8.html](http://www.whitehouse.gov/news/releases/2003/12/20031230-8.html).

<sup>4</sup> For more detail, see USITC, *Year in Trade 2003: Operation of the Trade Agreements Program*, Publication 3510, May 2003, especially chapter 5.

<sup>5</sup> Clothing items made with African fabric and yarn are subject to a limit of 1.5 percent of overall U.S. clothing imports (U.S. consumption) beginning in 2000, and growing to 3.5 percent of overall U.S. imports over an 8-year period. The Trade Act of 2002 doubles the limit to a new level of 3 to 7 percent over 8 years. For more detailed information, see USITC, *U.S. Trade and Investment with Sub-Saharan Africa*, 4<sup>th</sup> Annual Report, Investigation 332-415, Publication 3650, December 2003, especially chapter 2, and [www.agoa.gov](http://www.agoa.gov).

<sup>6</sup> Under AGOA, LDBCs are defined as designated SSA beneficiary countries with a per capita GNP of less than \$1,500 in 1998. AGOA II exempts Botswana and Namibia from this constraint, granting these two countries LDBC status. Right now, there is a bill in the U.S. Congress continuing these privileges and is expected to pass by September 2004.

The U.S. Trade Act of 2002 modified and expanded these AGOA provisions allowing the special clothing provision, which allowed for duty-free access to the U.S. market, to apply to imports from eligible SSA countries. The Trade Act of 2002 also amended AGOA by doubling the limit for clothing made in SSA beneficiary countries from regional fabric made with regional yarn from the previous level (of 1.5 to 3.5 percent of U.S. consumption) to a new level (of 3 to 7 percent over 8 years).<sup>7</sup> In January 2004, 37 of 48 eligible SSA countries had been designated *AGOA beneficiary countries*; of these 37 countries, 23 had met the additional special clothing provision outlined in the Trade Act of 2002.<sup>8</sup> This *special clothing provision* allows for producers in these countries to use third country fabric and yarn in qualifying clothing items. In addition, knit-to-shape clothing qualifies as does hybrid cutting conducted in both U.S. and AGOA countries.<sup>9</sup> This modified agreement is known as AGOA II.

To qualify for the *special clothing provisions*, AGOA beneficiary countries must meet certain criteria that ensures illegal transshipment does not happen and thus AGOA benefits are exclusively enjoyed by AGOA beneficiaries. To be eligible for the special clothing provision, beneficiary countries must implement an effective visa system and have legislation and administrative procedures that prevents transshipments and use of counterfeit documents. In addition, beneficiary countries must follow procedures that enable verifying the product origin shipped from these countries to the U.S.<sup>10</sup>

AGOA's passage professes to provide significant opportunities for SSA garment exporters. In addition to increased foreign direct investment flows, AGOA has been credited with improving the business climate and generating more regional cooperation to take advantage of the provisions. For example, investing in infrastructure has increased and there has been some

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<sup>7</sup> This broadening of the AGOA preferences has been come to be analogous to AGOA II. Herein, we will refer to these preferences as AGOA. See USITC, *Sub-Saharan Africa*, publication 3650, December 2003, especially chapter 2.

<sup>8</sup> As of December 2003, The 37 *AGOA beneficiary countries* are Angola, Benin, Botswana, Cameroon, Cape Verde, Chad, Republic of Congo, Côte d'Ivoire, Democratic Republic of Congo, Djibouti, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, South Africa, Swaziland, Tanzania, Uganda, and Zambia. The 23 countries that qualify for the *special clothing provisions* are Benin, Botswana, Cameroon, Cape Verde, Cote d'Ivoire, Ethiopia, Ghana, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritius, Mozambique, Niger, Namibia, Rwanda, Senegal, South Africa, Swaziland, Tanzania, Uganda, and Zambia. See [www.whitehouse.gov/news/releases/2003/12/2003-8.html](http://www.whitehouse.gov/news/releases/2003/12/2003-8.html).

<sup>9</sup> Two countries, Mauritius and South Africa, were disallowed from using the special clothing provision in the AGOA legislation.

<sup>10</sup> For more detail, see *2003 Comprehensive Report on U.S. Trade and Investment Policy toward Sub-Saharan Africa and Implementation of the African Growth and Opportunity Act*, Third of Eight Annual Reports (May 2003), especially chapter 3. [www.agoa.gov](http://www.agoa.gov)

reduction of bureaucracy.<sup>11</sup> Significant increases in textiles and clothing trade occurred in 2002, accounting for 8.9 percent of total AGOA exports to the United States, up from a 4.4 percent share in 2001. In addition, many countries in SSA, including South Africa, committed to a program of trade liberalization, resulting in expanded levels of textiles and clothing trade. The textile manufacturing industry in SSA is a small, albeit growing, industry.

In 2003, AGOA accounted for 55 percent of total U.S. imports from the region. The overwhelming majority (80 percent) of AGOA 2003 imports into the U.S. were petroleum products. Excluding fuel products, AGOA imports were slightly less than \$3 billion, of which textile and clothing total 1.2 billion, demonstrating an impressive growth rate of 50 percent over 2002.<sup>12</sup> Although the U.S. is Africa's largest single country market, purchasing almost 21 percent of the area's exports in 2002, Africa accounted for less than 2 percent of U.S. merchandise imports.<sup>13</sup>

The United States, EU, and Canada still maintained high tariffs and quantitative restrictions on many textile and clothing imports from more than 40 countries as of 2003.<sup>14</sup> Under the Uruguay Round, the Agreement on Textiles and Clothing (ATC, replacing the Multi Fiber Agreement) began the process of integrating textile and clothing trade. Under the ATC, QRs were to be eliminated in three stages over a 10-year period, ending on January 1, 2005.<sup>15</sup> As we approach the final months of the ATC, little liberalization has actually occurred, as the final 49 percent of textile and clothing trade is to be integrated on January 1, 2005.<sup>16</sup>

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<sup>11</sup> USITC, *Sub-Saharan Africa* 332-415, Publication 3650, December 2003, p. 2-10 and especially tables 2-6 and 2-7, pp. 2-17 to 2-22.

<sup>12</sup> International Trade Administration, U.S. Department of Commerce, *U.S.-Africa Trade Profile*, p. 1. (find website...)

<sup>13</sup> The EU accounted for 43.3 percent of Africa's exports in 2002. If recognized as one country, EU would be SSA's largest single-country market. *Ibid*, 3.

<sup>14</sup> The AGOA removed U.S. quotas on clothing imports from Mauritius and Kenya in 2000. These barriers originated under the Multi Fiber Agreement, which permitted the use of quantitative restrictions on imports of T&C without compensation. The quantitative restrictions negotiated under the MFA are voluntary export restraints. As such, these barriers were discriminatory, differed from country to country in terms of product coverage and degree of restrictiveness; and generated a transfer of rent from the importing country to the exporting country.

<sup>15</sup> Beginning Jan. 1, 1995, countries were required to: integrate at least 16 percent of textiles and clothing trade into the GATT regime, based on their respective 1990 import volumes; implement accelerated annual growth rates for the remaining QRs, with an increase of 16 percent for the major supplier countries and 25 percent for small suppliers. Starting Jan. 1, 1998, an additional 17 percent of trade was integrated, and quota growth rates were increased by 25 percent for major supplier countries and 27 percent for smaller suppliers. Finally, on Jan. 1, 2002, an additional 18 percent of trade was integrated and annual growth rates for the remaining quotas were increased by 27 percent.

<sup>16</sup> In its first report, the Textile Monitoring Body of the WTO stated that, with one exception, the products integrated by the importing developed countries in the first stage were not subject to quotas and consisted mainly of relatively lower value-added products, such as yarns and fabrics. The Body also stated that

Sub-Saharan African trade is occurring in an international context of textiles and clothing trade liberalization, and SSA export opportunities are evolving together with shifts in the position of competing suppliers. The goal of AGOA was to give SSA an earlier start in building capacity before the full implementation of the ATC. Thus, the execution of ATC's final stage in January 2005 can be expected to have a deep impact on trade, as international textiles and clothing producers are forced to rationalize production methods and wages. Throughout the processes, higher cost producers are displaced by more efficient producers. Although the ATC will impact this region, the implementation experiment is beyond the scope of the current work and is addressed in an upcoming paper.

### **III. Methodology, Data and Shocks**

#### ***a. Methodology and Data***

The data and model used for the analysis is derived from the Global Trade Analysis Project (GTAP), which is widely used for international trade policy analysis. We apply a modified version of the static model (Hertel and Tsigas, 1997) to an aggregation of the GTAP Data Base v.5.4 (Dimaranan and McDougall, 2002), which combines detailed bilateral trade, transportation and protection data, and accounts for inter-regional linkages among economies and input/output data bases for inter-sectoral linkages within countries. The model used herein assumes perfectly competitive markets and constant returns to scale technology. The database includes a fully specified record of trade transactions and duties among different regions for the commodities (Gehlhar *et al.* 1997).

We employ a 14 region (SACU, Other Southern Africa, Rest of SSA, Latin America, Mexico, Central America/Caribbean, China, Old NICs, ASEA, South Asia, U.S., Canada, EU-15 and Rest of World), 12 sector aggregation (textiles; clothing; cotton; crops; animal agriculture; crops; mining; food; heavy manufacturing; light manufacturing; utilities; construction; services) to conduct our scenarios.

The model and database are modified in two important ways to incorporate ROO. First, clothing production in the AGOA countries is split into two distinct commodities: one which does not comply with the ROO and a second commodity which does comply with ROO.

The total value of production of ROO compliant clothing produced is set equal to 10 percent of the U.S. quota. This reflects that in 2000, it was established that 15 percent of the quota was being filled by the African economies. Therefore in 1997, the proportion of the quota

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products integrated in the second stage consisted mainly of relatively lower value-added products. In its second report, the Textile Monitoring Body confirmed these conclusions, and emphasized that the large majority of products under restrictions would be integrated between Jan. 1, 2002 and Jan. 1, 2005. See WTO (2001), par. 277-281, 329.



filled is most likely to be somewhat less than 15 percent.<sup>17</sup> This production is then allocated across the African regions in the same proportions as their production of clothing.

The incorporation of a ROO compliant clothing commodity adds an additional level of choice for U.S. consumers of clothing.<sup>18</sup> Figure 1 below demonstrates this choice. First the U.S. consumers choose how much clothing they wish to purchase, whether it will be purchased from domestic or foreign suppliers, and which foreign suppliers. Then, if they are choosing African clothing, they will select whether they wish the ROO compliant variety or the non-ROO compliant variety of clothing. In all cases, the standard GTAP elasticities are used. In the decision on whether to purchase the ROO compliant commodity or the non-ROO compliant commodity, an elasticity equal to double that at the previous level<sup>19</sup> is used. U.S. tariffs and quotas (tariff equivalents) are then only reduced on the ROO compliant variety of clothing from the African regions.

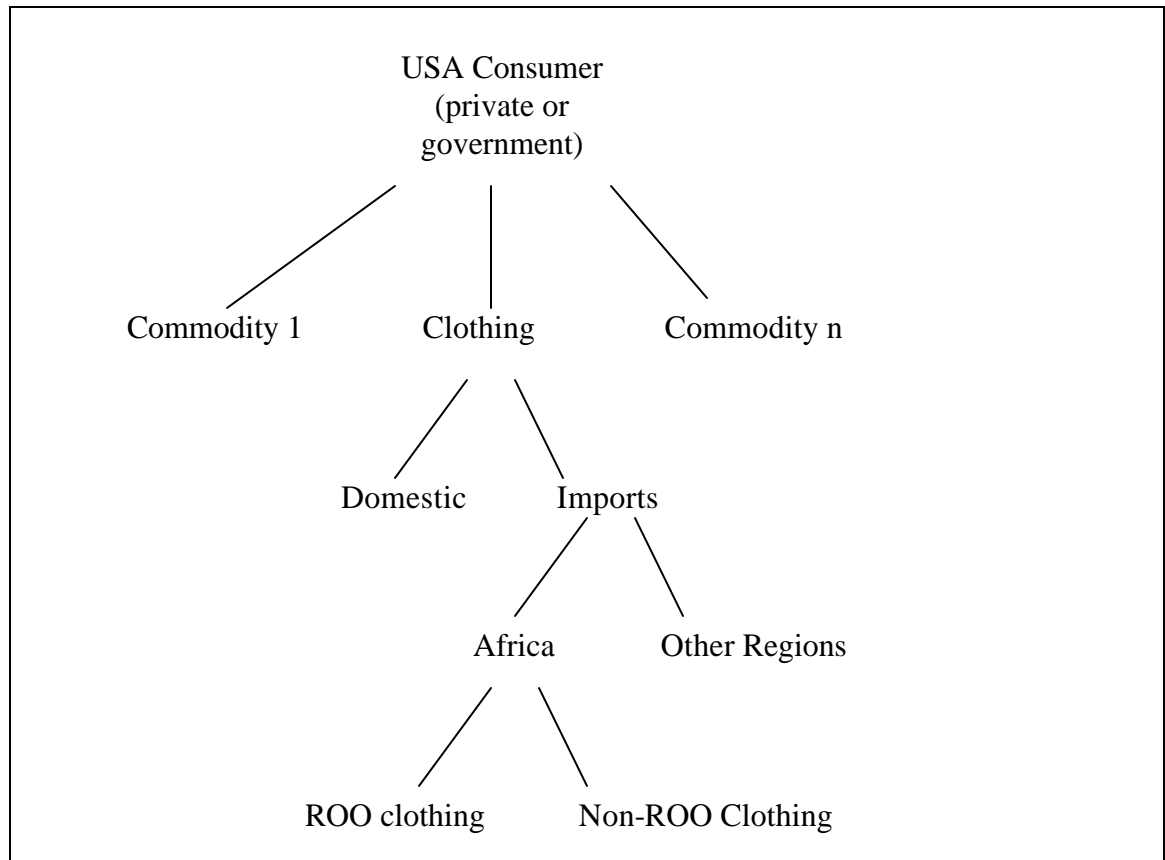
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<sup>17</sup> Given the values provided in the GTAP data base for 1997 it was not possible for 15 percent of the quota to be filled by the African economies – hence 10 percent was chosen.

<sup>18</sup> It is assumed that only the U.S. will demand this ROO compliant clothing commodity and only the African economies will supply it. It is not significantly differentiated from the clothing commodity currently produced in Africa to warrant other consumers paying the higher prices. Note that while the equations allow for other commodities to purchase the ROO compliant commodity the value of initial purchases and hence updated values are zero.

<sup>19</sup> In the GTAP model, this elasticity is E<sub>SUBM</sub>. For clothing, it has a value of 8.8 and hence, we use 17.6 for the decision between clothing variants.

**Figure 1: Decision tree for U.S. Private Consumer/Government<sup>20</sup>**

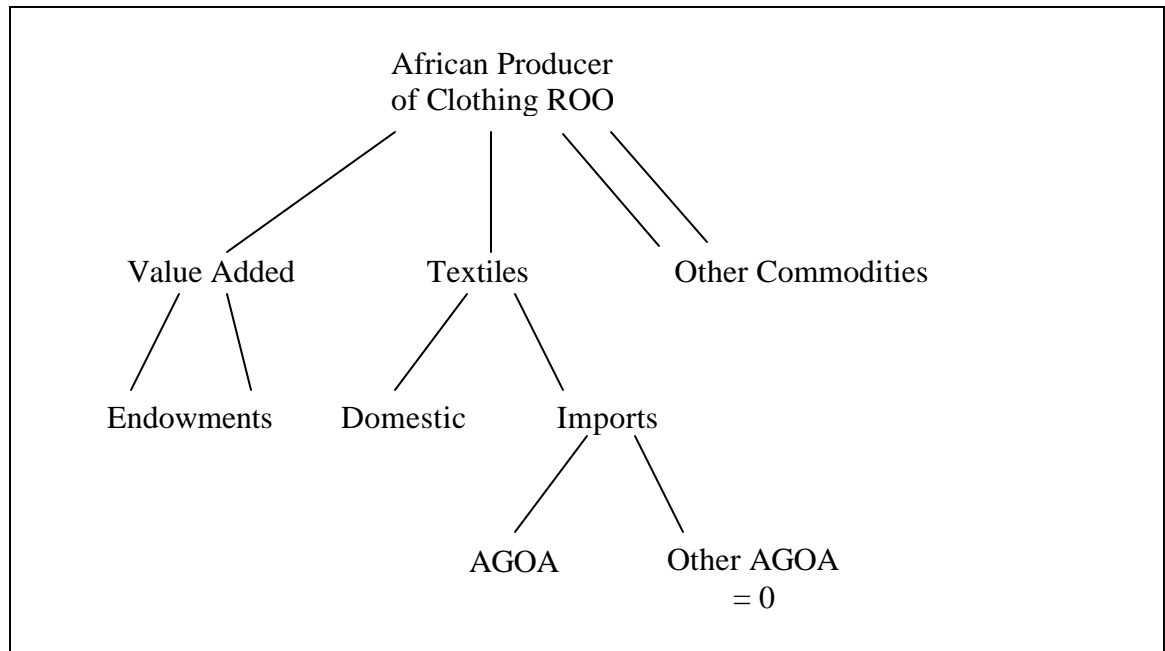


The second modification is that imports by firms must now be traced to their source. The data and model are modified so that firms (and government and private consumption) can now track not only how much they want to import, but also from which region they wish to import. Hence for all intermediate inputs (e.g. textiles in Figure 2), the producer chooses how much it requires, and whether it will source these intermediate inputs from domestic or imported sources. Finally, the producer will then choose from which country to purchase the imported textiles. Likewise private consumers and government will also choose which region to demand their imported commodities from.<sup>21</sup>

<sup>20</sup> Note that firms in the U.S. also have a similar decision making tree.

<sup>21</sup> In the standard GTAP model imports of private households, government and firms are first aggregated before the source of the imported commodities is decided.

**Figure 2: Decision tree for African Producers**



With the exception of the ROO compliant clothing, the split is done in such a way that private consumption, government and firms demand the same proportions of their imports from each of the regions. Hence the choice of region is independent of the agent.

In the case of the ROO compliant clothing commodity, these are only purchased by the U.S. from the African economies. Furthermore, the data is also adjusted to ensure that the share of textiles imported from non-AGOA regions and used in production of the ROO compliant variety of clothing is zero (Figure 2) and remains zero after the tariffs and quotas on these ROO compliant commodities are eliminated. This ensures that the ROO restrictions are satisfied for the ROO compliant clothing commodity.

### ***B. Policy Shocks and Counterfactual Baseline***

Before examining the impact of AGOA we need to take into account the CBTPA shock, whereby allowing the Caribbean and Central American have unrestricted access to the U.S. market on textiles and clothing. Since an earlier version of CBTPA was implemented prior to 1997, we incorporate this unilateral agreement using an *altertax* experiment.<sup>22</sup>

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<sup>22</sup> The Caribbean Basin Initiative and Caribbean Basin Economic Recovery Act were earlier iterations of CBTPA. For more detail, see USITC, *The Year in Trade*, various years. The baseline *altertax* experiment incorporates CBTPA into the GTAP data base with minimal impact on the structure of the GTAP data base. Although CBTPA was passed the same time as AGOA, another version of the U.S.-Caribbean agreement was in place since the late 1980s.

We use this updated data base to then execute the AGOA agreement. The AGOA agreement includes both a reduction in tariffs and the removal of quotas on the ROO compliant commodity. The tariffs and quotas imposed by the U.S. on clothing are listed in Table 1. Approximately the same rates are imposed on all clothing purchased from the Southern African economies by the U.S..

**Table 1: Tariffs and Quotas imposed by the U.S. on Clothing**

	<b>Tariffs on clothing</b>	<b>Export Tax equivalent</b>
SACU	11.0459	0.5075
Rest of South Africa	12.7921	0.5962
Rest of SSA	11.2607	0.5040

We compare the impact of four alternative experiments:

- A.** The AGOA agreement with ROO incorporated using the standard GTAP closure.
- B.** The AGOA agreement with ROO incorporated using a special closure GTAP closure.
- C.** The AGOA agreement using the standard GTAP model without ROO incorporated, standard GTAP closure.
- D.** The AGOA agreement using the standard GTAP model without ROO incorporated, non-standard GTAP closure.

The special closure referred to in **B** above takes into account some of the non-standard features of developing economies, including the existence of an excess supply of unskilled labor and a fixed trade balance. In this case we assume that real wages do not change when there is an increase in demand for labor, rather more people are drawn into the labor force. This is clearly the case for developing countries where there is often a large pool of excess unskilled labor. The second closure adjustment is due to the fact that we assume that the balance of trade relative to income is fixed for the developing economies. This reflects that these economies may not have the same access to foreign capital as developed economies do.

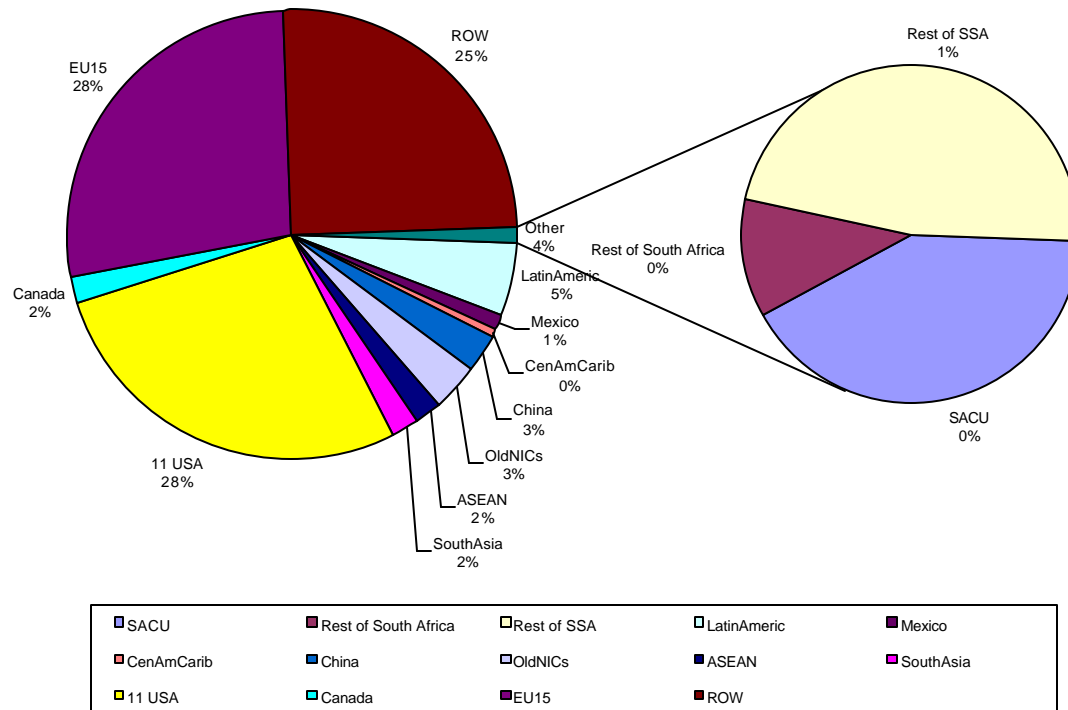
Finally experiment **C** incorporates the AGOA agreement into the standard GTAP model (with standard closure) to examine the impact of AGOA without the ROO.

#### IV. Results

##### a. Macro

Figure 1 below shows that the Southern African economies examined in this paper are very small in terms of Real GDP accounting for less than 4 percent of world GDP. The rest of SSA is the largest of within the region followed by SACU and finally the Rest of Southern Africa.

**Figure 1: World Share of GDP**



The macro results set out in Table 2 show that SACU, rest of SSA and rest of Southern Africa all gain as a result of AGOA. It is notable that it is the smaller African economies – the rest of Southern Africa and to a lesser extent SACU – who gain the most from the AGOA agreement. These gains are illustrated in Table 2 by the positive changes in welfare and the very small increases in Real GDP.

Decomposition of the welfare gains under the standard closure (Exp1a) reveals that over 60 percent of these welfare gains are due to the beneficial terms of trade effect resulting from higher prices received from clothing exports (Table 3). The U.S. also gains as a result of the agreement, while those who are not party to the agreement lose. Most of the U.S.’s gains (and the other country’s loses) also come from the terms of trade effect (Table 3).

**Table 2: Macro Results**

	EV				Real GDP				TOT			
	EXP1a	EXP1b <sup>23</sup>	EXP1c	EXP1d	EXP1a	EXP1b	EXP1c	EXP1d	EXP1a	EXP1b	EXP1c	EXP1d
<b>SACU</b>	32.54	69.05	65.85	132.15	0.01	0.04	0.02	0.07	0.06	0.05	0.12	0.10
<b>Rest of Southern Africa</b>	47.68	72.81	90.25	139.47	0.04	0.12	0.08	0.23	0.23	0.19	0.45	0.38
<b>Rest of SSA</b>	15.21	24.90	31.12	50.09	0.00	0.01	0.01	0.02	0.02	0.02	0.04	0.04
<b>Latin America</b>	-0.36	0.03	-1.42	-0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Mexico</b>	-6.97	-6.92	-15.08	-15.02	0.00	0.00	0.00	0.00	-0.01	-0.01	-0.01	-0.01
<b>Central America and Caribbean</b>	-14.21	-14.40	-30.62	-31.07	0.00	0.00	0.00	0.00	-0.03	-0.03	-0.06	-0.07
<b>China</b>	-30.39	-30.29	-63.15	-63.08	0.00	0.00	0.00	0.00	-0.01	-0.01	-0.03	-0.03
<b>NICs</b>	-13.69	-13.29	-26.96	-26.23	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	-0.01
<b>ASEAN</b>	-13.87	-16.24	-29.04	-33.78	0.00	0.00	0.00	0.00	-0.01	0.00	-0.01	-0.01
<b>South Asia</b>	-10.80	-12.76	-18.57	-20.77	0.00	0.00	0.00	0.00	-0.01	-0.01	-0.02	-0.03
<b>U.S.</b>	43.15	46.88	114.81	122.63	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
<b>Canada</b>	2.50	2.46	4.88	4.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>EU15</b>	-32.08	-24.67	-61.66	-47.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>ROW</b>	-5.35	-17.46	-11.40	-34.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Exp1a: AGOA with ROO and standard closure

Exp1b: AGOA with ROO and non-standard closure

Exp1c: AGOA without ROO and standard closure

Exp1d: AGOA without ROO and non-standard closure

<sup>23</sup> Tax replacement was also included in this non-standard closure, however the results were only marginally affected.

**Table 3: Welfare Decomposition for Exp 1a (standard closure with ROO)**

<b>WELFARE</b>	<b>Allocative Efficiency effect</b>	<b>Endowment Effect</b>	<b>Tech Change effect</b>	<b>Terms of Trade effect</b>	<b>Investment- Saving price effect</b>	<b>Total</b>
<b>SACU</b>	10.57	0	0	24.03	-2.05	32.54
<b>Rest of Southern Africa</b>	17.52	0	0	31.19	-1.03	47.68
<b>Rest of SSA</b>	3.79	0	0	9.31	2.10	15.21
<b>Latin America</b>	0.13	0	0	-1.14	0.64	-0.36
<b>Mexico</b>	-0.83	0	0	-6.55	0.41	-6.97
<b>Central America and Caribbean</b>	-1.36	0	0	-11.89	-0.95	-14.21
<b>China</b>	-0.70	0	0	-30.48	0.79	-30.39
<b>NICs</b>	-0.05	0	0	-14.20	0.55	-13.69
<b>ASEAN</b>	-0.31	0	0	-13.89	0.33	-13.87
<b>South Asia</b>	-1.13	0	0	-9.83	0.16	-10.80
<b>U.S.</b>	2.42	0	0	44.61	-3.88	43.15
<b>Canada</b>	-0.16	0	0	2.40	0.26	2.50
<b>EU15</b>	-14.17	0	0	-18.58	0.68	-32.08
<b>ROW</b>	-2.30	0	0	-5.05	1.99	-5.35

Exp1a: AGOA with ROO and standard closure  
 Exp1b: AGOA with ROO and non-standard closure  
 Exp1c: AGOA without ROO and standard closure  
 Exp1d: AGOA without ROO and non-standard closure

A comparison of the welfare impacts from the four experiments reveals that the incorporation of ROO has had a significant impact on the welfare gains of the African economies (Exp1a and Exp1c). In all three African regions welfare is halved as a result of the inclusion of ROO. This result is not surprising given that U.S. tariffs and quotas are only eliminated on those commodities which are ROO compliant and that these producers of the ROO compliant variant must purchase all of their intermediate inputs of textiles from within the AGOA region (including the U.S.). These restrictions reduce the ability of producers to gain from the AGOA agreement and hence welfare of the African economies is lower than it would have been if ROO had not been applied.

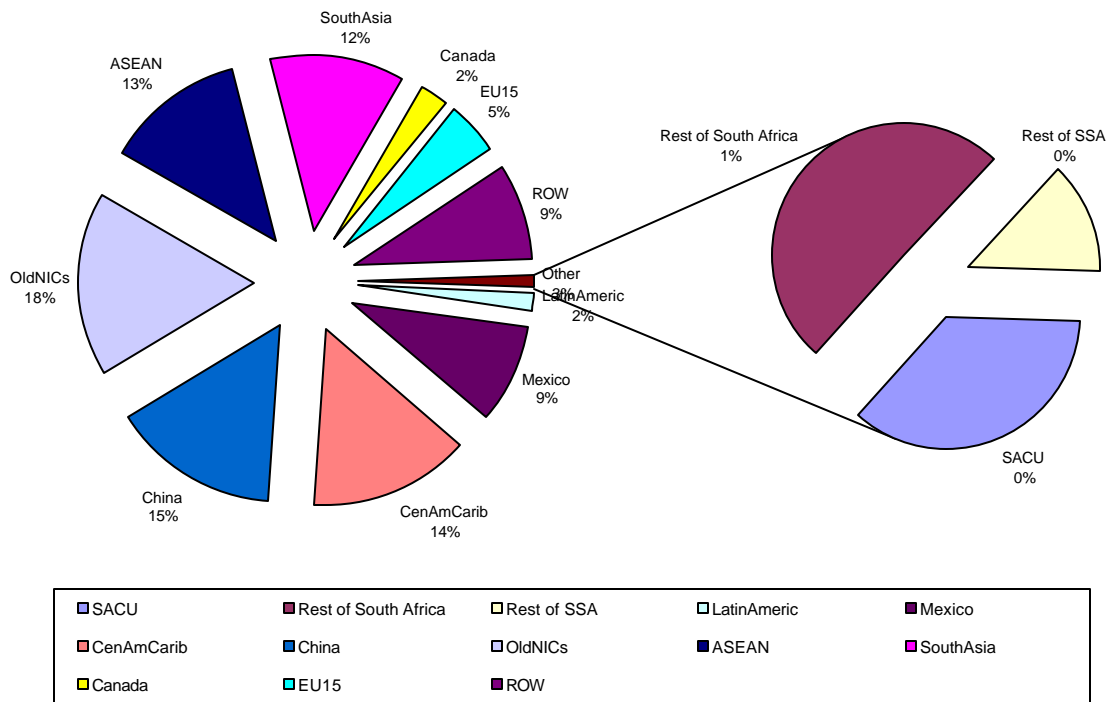
Finally, the non-standard closure has the effect of increasing the gains to the African economies from AGOA. This is due to there being an increase in demand for and hence supply of unskilled workers; the increased gains therefore show up in the welfare decomposition as an increase in the endowment effect.

### ***b. Sectoral Results***

Although the Rest of SSA is the larger region in terms of GDP (Figure 1), it was shown previously that larger gains are made by the smaller region: the Rest of Southern Africa. The

reason for this is that while the rest of SSA is the largest in terms of GDP, the situation is reversed in the case of exports of clothing to the U.S. Here the Rest of Southern Africa has the largest share among the African economies and the Rest of SSA has the smallest share (Figure 2). Furthermore, Figure 3 shows that while the Rest of SSA produces more clothing than the Rest of Southern Africa and SACU, a much smaller proportion of this production is exported. The Rest of Southern Africa exports over 50 percent of its clothing production and hence the reduction of tariffs and the elimination of quotas is likely to have a much larger impact on the Rest of South Africa's clothing market.

**Figure 2: Share of U.S.'s imported Clothing Market**





**Figure 3: Clothing Production sold on Domestic and Export Markets**

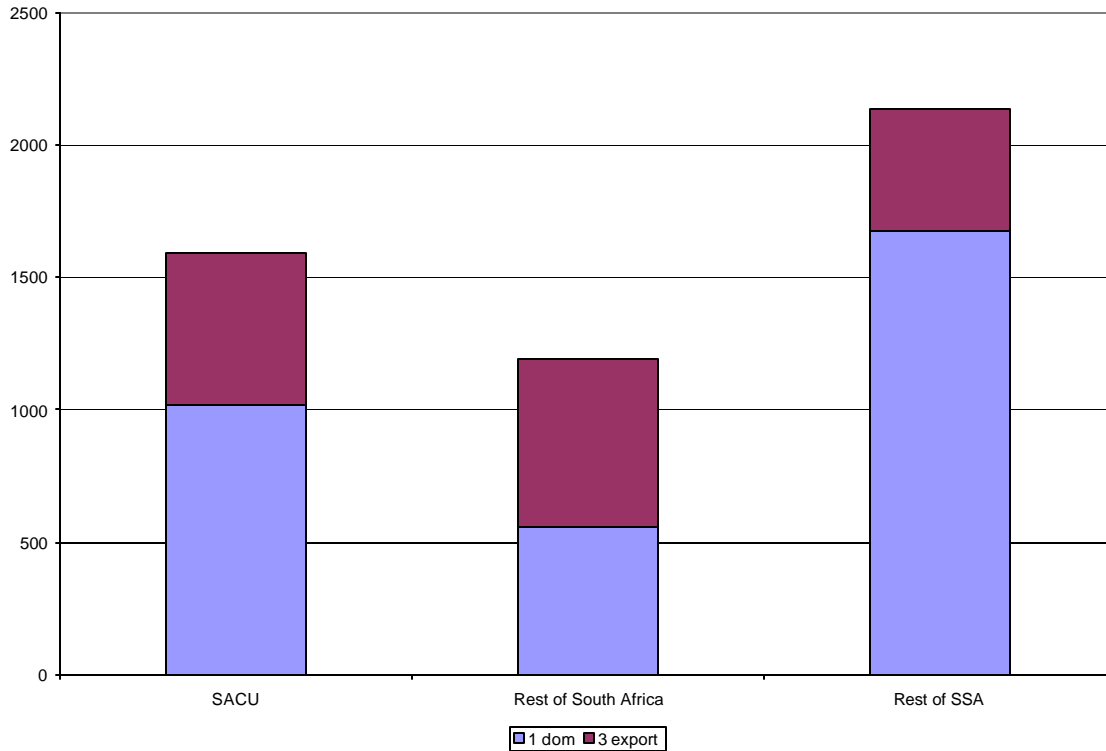


Table 4 shows how the elimination of tariffs and quotas increases the production of clothing. Without the ROO clauses in the AGOA agreement (Exp1c), clothing production would increase by \$US266.67 million in SACU, \$US334.41 million in the Rest of South Africa and \$US85.7 million in Rest of SSA. As previously noted, the large increase in production in the Rest of South Africa reflects the importance of exports for their clothing market.

With ROO incorporated into the AGOA agreement (Exp1a) clothing production would increase by only \$US124.14 million in SACU, \$US164.52 million in the Rest of South Africa and \$US39.94813 million in Rest of SSA, considerably less than the estimated increases in production obtained when ROO is not incorporated (Exp1c). Notice these increases are the cumulative effect once we take into account the expansion in production of the ROO compliant clothing commodity and the reduction of the non-ROO compliant commodity. This diversion of resources from the non-ROO compliant commodity to the ROO compliant commodity is what would be expected under an agreement in which ROO were prevalent.<sup>24</sup>

<sup>24</sup> Note that the change in welfare could be an overestimation of welfare since there are no tax equivalents (in the initial data base) which measure the extent to which the choice of inputs into the production of the ROO compliant clothing commodity is sub-optimal. Tax equivalents are created in the updated data as inputs continue to be restricted.

**Table 4: Changes in the production of clothing and ROO compliant clothing (\$US Millions)**

	Exp1a		Exp1b		Exp1c	
	Clothing	ROO compliant clothing	Clothing	ROO compliant clothing	Clothing	ROO compliant clothing
<b>SACU</b>	155.40	-31.26	155.75	-30.15	266.67	0.00
<b>Rest of Southern Africa</b>	225.14	-60.62	226.64	-59.00	334.41	0.00
<b>Rest of SSA</b>	55.24	-15.29	55.30	-14.93	85.70	0.00

Exp1a: AGOA with ROO and standard closure

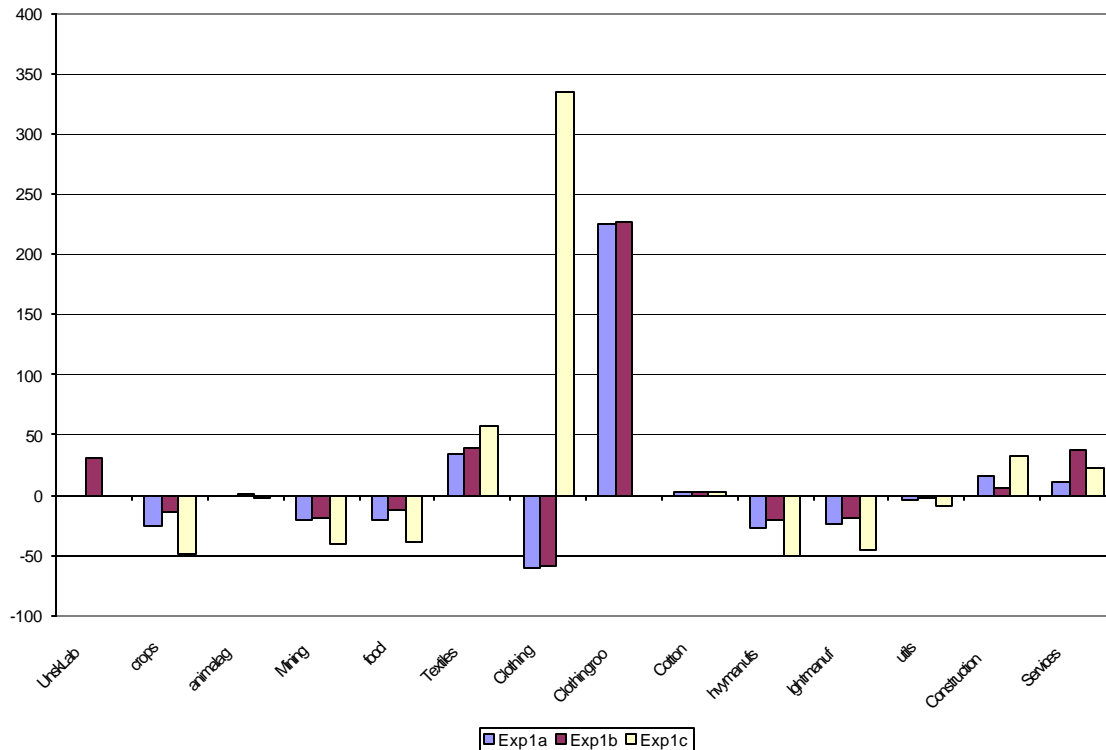
Exp1b: AGOA with ROO and non-standard closure

Exp1c: AGOA without ROO and standard closure

Figure 4 indicates that while production of the ROO compliant clothing commodity rose, most of the other sectors experience declines in production (Exp1a). The exceptions are textiles, services and construction. The increase in textiles and services production is the result of increased intermediate demand by the clothing sector. Textiles account for 24.8 percent and services for 14.2 percent of all costs (including factors of production) of producing clothing. The increase in demand for construction is the result of a slight increase in investment – caused by higher rental prices, most notably from clothing. While some of the textiles are produced domestically, there is also an increase in textile imports by the African economies from AGOA countries (including the U.S.). Results are similar for the experiment in which ROO is not incorporated (Exp1c, although the effects are larger in absolute terms reflecting that clothing, as opposed to just the ROO compliant variant of clothing, increases as a result of the elimination of tariffs and quotas.

Finally the use of the non-standard closure (Exp1b) has a negligible positive effect on the production of clothing. The increased supply of labor result in slightly smaller declines or larger gains to most of the other sectors, particularly services. Investment, and hence construction, contract slightly under the alternative closure as investment is now driven by the fixed trade balance (relative to income).

**Figure 4: Production in Rest of Southern Africa, under standard and special closures**



Exp1a: AGOA with ROO and standard closure  
 Exp1b: AGOA with ROO and non-standard closure  
 Exp1c: AGOA without ROO and standard closure

## V. Policy Implications

While this research is still a work in progress, our findings show that ROO are an important issue that require further investigation. It is critical that more work is done to model the constraints associated with ROO. We find that the benefits of the AGOA agreement are severely restricted when producers of clothing are required to purchase their fiber and textiles from particular producers.

Further work still needs to be undertaken to account for the additional cost of applying for and documenting the ROO clauses. In his 2001 paper, David Hummels demonstrated that time could be a substantial barrier to trade. The documentation and adherence to the ROO clauses are also likely to be a substantial barrier to trade.

Despite the limitations, these experiments give a glimpse into what the future might be like for AGOA beneficiaries if the current proposed legislation of AGOA II is not voted on and passed before September 2004, the date when the ROO exceptions expire and AGOA producers

need to purchase their inputs from domestic producers or the United States.

**Table A. ROO Regional Aggregation 14x7**

<b>GTAP Regions</b>	
1	<b>SACU</b> Botswana, Rest of SACU (which includes South Africa, Lesotho, Namibia and Swaziland)
2	<b>Other Southern Africa</b> Malawi; Mozambique; Tanzania; Zambia; Zimbabwe; Other Southern Africa (including Angola and Democratic Republic of the Congo).
3	<b>Rest of SSA</b> Uganda, Rest of SSA (not included above in SACU, Other Southern Africa) Benin, Burkina Faso, Burundi, Cameroon, Madagascar, Malawi, Mali, Mauritania, Mauritius, Cape Verde, Central African Republic, Cameroon, Mozambique, Niger, Chad, Nigeria, Comoros, Republic of the Congo, Côte d'Ivoire, Rwanda, Democratic Republic of the Congo, Sao Tomé and Príncipe, Djibouti, Senegal, Equatorial Guinea, Seychelles, Eritrea, Sierra Leone, Ethiopia, Somalia, Gabon, The Gambia, Sudan, Ghana, Guinea, Tanzania, Guinea-Bissau, Togo, Kenya, Uganda, Zambia, Liberia, Zimbabwe
4	<b>Latin America</b> Colombia; Peru; Venezuela; Rest of Andean Pact; Argentina; Brazil; Chile; Uruguay; Rest of South America.
5	<b>Mexico</b> Mexico
6	<b>CA, Caribbean</b> Central America and the Caribbean
7	<b>China</b> China
8	<b>Old NICs</b> Hong Kong, Korea, Taiwan, Singapore
9	<b>ASEAN</b> Indonesia, Malaysia, Philippines, Thailand, Vietnam
10	<b>South Asia</b> Bangladesh, India, Sri Lanka; Rest of South Asia
11	<b>U.S.</b> U.S.
12	<b>Canada</b> Canada
13	<b>EU-15</b> Austria, Belgium, Denmark, Finland, France, Germany, UK, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden
14	<b>Rest of World</b> Australia, New Zealand, Switzerland, Rest of EFTA, Hungary, Poland, Rest of Albania, Bulgaria, Croatia, Czech Republic, Hungary, Malta, Romania, Slovakia, Slovenia, Lithuania, Russian Federation, Rest of Former Soviet Union, Japan, Cyprus, Turkey, Rest of Middle East, Morocco, Rest of North Africa, Rest of the World.

**Table B. ROO Sector Aggregation 14x7**

<b>GTAP Sectors</b>	
1	<b>Textiles</b> Textiles
2	<b>Clothing</b> Wearing apparel, leather products
3	<b>Cotton</b> Plant based fibers
4	<b>Mining</b> mineral products nec; ferrous metals; metals nec;
5	<b>Crops</b> Patty rice; wheat, cereal grains nec; vegetables, fruit, nuts; oil seeds; sugar cane, sugar beet; crops nec; forestry; fishing.
	<b>Animal Ag</b> Meat: cattle, sheep goats, horses; animal products; raw mink; wool, silk work cocoons .
	<b>Mining</b> Coal; oil; gas; minerals nec; petroleum, coal products;
	<b>Food</b> meat products; vegetable oils and fats; dairy products; processed rice; sugar; food products nec; beverages and tobacco;
	<b>Heavy Manufacturing</b> Leather products; wood products; paper products, publishing; chemical, rubber, plastic products; metals nec; metal products;
	<b>Light Manufacturing</b> motor vehicles and parts; transport equipment nec; electronic equipment nec;
	<b>Manufacturing</b> machinery and equipment nec; manufactures nec;
	<b>Utilities</b> Electricity; gas manufacture, distribution; water;
	<b>Construction</b> construction;
	<b>Services</b> trade; transport nec; water transport; air transport; communication; financial services nec; insurance; business services nec; recreational and other services; public administration, defense, education, health; dwellings.

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