

# **SPECIAL AND DIFFERENTIAL TREATMENT IN MULTILATERAL TRADE NEGOTIATIONS**

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## **Abstract**

WTO trade negotiations stalled in recent years because of north-south trade conflicts reaching their lows during the Cancun fiasco of September 2003. The developed countries with a much longer history as "industrial economies" have always argued - often with some justification - that the developing countries have long used many and varied instruments to restrict trade. The developed countries, in their turn, have maintained high protection to agriculture and textile imports to the detriment of the developing countries. One cornerstone of the Doha Development Agenda (DDA) is the provision of special and differential treatment (SDT) of developing countries. The WTO framework accord reached in July 2004 reaffirms that the least-developed countries, which will have full access to all SDT provisions as stated in section 2.2 of DDA, are not required to undertake tariff reduction commitments. We believe, however, that non-reciprocity as implied in SDT must be approached with caution. Standard trade theory literature suggests that the bulk of the gains from trade come from unilateral trade liberalisation and results of our experiments support this point. We quantify the gains and losses - and their sources - by simulating a trade liberalisation scenario with and without SDT in a computable general equilibrium (CGE) modelling framework. The welfare gains to most developing countries are shown to improve when SDT does not apply, and the LDC welfare gains turn out to be either small or even negative under SDT arrangements. Ironically, the already-agreed elimination of agricultural export subsidies is shown to be welfare-reducing for much of the developing world. We conclude that bold improvements in market access provide greatest prospect of gains to developing countries, and need not be treated as "concessions" to these groups of countries.

JEL Classification:  
F13, F17, O19

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*Paper prepared for presentation at the 46th Annual Conference of New Zealand Association of Economists, Christchurch, 29 June-1 July 2005.*

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## I. INTRODUCTION

The Doha Development round missed the January 2005 completion deadline and key disputes remain to be resolved in the upcoming sixth WTO ministerial conference in Hong Kong in December of this year. Foremost among these unresolved disputes is the topic of further liberalisation of agricultural trade and the state of many developing countries (DCs) as well as the least developed countries (LDCs) in the post-MFA era. The sixth ministerial will attempt to untangle these disputes and determine a framework for modalities in agriculture based on principles agreed in July 2004 (to be called “July framework” in rest of the paper).<sup>1</sup> In this paper, we model scenarios based on our interpretation of the July framework accord. We calculate regional welfare gains (and losses) arising from various proposals implicit in this accord. We further decompose these gains and losses based on the type of proposed reforms (tariff, export subsidy, domestic subsidy), the origination of reform (in developed or developing regions) and the sectors involved (agriculture, textile or manufacturing).

The “July framework” firmly reiterates special and differential treatment (SDT) for least-developed countries and adds some specific recommendations to the original Doha Ministerial Declaration. The current trade round has differentiated itself from its predecessors by calling it the “development round”. Understandably the WTO and at least some developed members are sincere in their efforts to grant some “concessions” to the least-developed countries. The justification for such SDT may be traced to some perceived notions which have been challenged in recent writings. Some of these notions are: (i) DCs and LDCs can generally be considered to possess comparative advantage in agriculture such that liberalisation of agricultural trade will be beneficial to these nations; (ii) developed countries are the most notorious in terms of creating agricultural trade distortions that works to the detriments of DCs and LDCs; (iii) previous trade negotiations, except for the Uruguay Round,

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<sup>1</sup> For a complete text of the July Framework accord, see [www.wto.org/english/tratop\\_e/dda\\_e/draft\\_text\\_gc\\_dg\\_31july04\\_e.htm](http://www.wto.org/english/tratop_e/dda_e/draft_text_gc_dg_31july04_e.htm). For an overview of the events leading up to July Framework accord, see Shakur, Rae and Chatterjee (2004).

ignored agricultural reforms altogether such that this sector currently remains most protected;

(iv) Agricultural trade liberalisation would benefit the DCs and LDCs the most. As if to rid themselves of their “sins” from the past, SDT has been proposed in the current trade round as a favour to these developing countries.

Several recent papers, however, would argue against these perceived views. Results of our simulation exercise show that if reforms are restricted to the agricultural sectors of developed countries, many DCs and LDCs suffer a worsened plight with only the developed countries themselves being the real winners. The developing countries may do better by also addressing their own protectionism and should seek SDT as an extended phase-in period to implement their reforms rather than a lesser depth of these reforms. However, within SDT, some clear gains emerge from a market access agenda in developed countries such that proposals like that of tariff reduction should be the top priority of a development round.

On the first of the perceived notions, that of the issue of comparative advantage, some decomposition across agricultural products is warranted. For example in large scale cereal production and livestock, the developed countries enjoy cost advantage by economies of scale. In what Stiglitz et al. (2005, p. 304) calls programme crops and livestock, the developed countries are net exporters and the developing countries are net importers. Generalisation of developing countries comparative advantage in tropical products and processed foods are faulty and often lead to perverse policy recommendations. Stiglitz et al. (2005, p. 305) would like the developing countries to focus their attention to the elimination of tariffs and quotas on these later products in which they have high elasticities with respect to price. A similar argument can be made to the perceived notion that comparative advantage in manufactured products belong to the developed countries. In labour-intensive manufacturing like textiles, developing country supremacy is already established. These latter countries are quickly claiming advantage in electronics, spare parts and other niche areas. Hertel and Martin (2000, p.468) note that manufactured exports already account for about

three-quarters of total merchandise exports for the average developing country. Accordingly, trade liberalisation in manufacturing is also a vital component of a development agenda and we calculate these gains in this research.

Some of the other perceived views stated above have been debunked in Arvind Panagariya's most recent paper (Panagariya 2005) which has received widespread pre-release publicity especially in popular press. Specifically Panagariya has identified six fallacies in respect to agricultural liberalisation and developing countries, and offered credible evidence to debunk them. The first these fallacies he states is "agricultural border protection and subsidies are largely a developed-country phenomenon." Using average tariff rates as measures of protection, Panagariya (2005, p.9) shows major developing countries being more protective than developed countries. By yet another indicator, the proportion of duty-free agro-food items in developed countries is clearly higher than in developing countries. The worst two offenders among developed countries, namely Iceland and Norway with average tariff rates of 72 and 47 percent respectively are dwarfed by the two developing country counterparts, namely Colombia and India that impose tariff rates of 105 and 101 percent respectively to agricultural imports (Panagariya 2005, p.10).

The perceived notion that current agricultural protection is much higher than manufactured products (stated alternatively, that not further gain can be realised from already low protection level in manufactured products) may be true in general, but need some qualifications. First, with respect to developed countries, the average tariff imposed on manufactured imports from developing countries are, on average, four time as high as those imposed on manufactured imports from other high-income countries (Hertel and Martin 2000, p.464). Contrast this to the fact that most food products from developing countries, except for some "sensitive items", already enter key developed markets of the EU and US virtually free of any tariff and the notion of high agricultural tariff vis a vis manufacturing goods is less obvious. Again it lends

support to our view that liberalising trade in manufactured products should not be forgotten in the name of disciplining agricultural trade.

The last among the list of our four perceived notions is the most contentious issue in the Doha round and to which we devote most of this research. This notion is stated by Arvind Panagariya somewhat differently as Fallacy # 2: “developed-country agricultural subsidies and protection hurt the poorest developing countries most” (Panagariya 2005, p. 3) which we take to imply that agricultural trade liberalisation by developed countries would benefit the developing countries the most. Panagariya believes this fallacy to be the most important one to debunk from among the six fallacies that he states “because it enjoys the near-universal acceptance” as well as its practical importance to LDCs.” The simple but convincing argument offered here is the fact that many of the developing countries are net food importers who would be faced with higher food prices should the developed countries remove their export and domestic subsidies and import tariffs. Valdes and McCalla (1999) state that of 48 of the world’s poorest countries, 33 were net importers of agricultural products, and an even higher number of countries, 45, were net food importers. Our calculation of welfare changes from agricultural reforms in developed countries alone lend support to Panagariya’s debunking of this fallacy and points to other areas of reform in developed and developing countries that have the potential to provide gains for the latter groups.

The rest of the paper is structured as follows: in section 2 we discuss post-WWII history of SDT. Modelling techniques and data are introduced in section 3, with an elaboration of the commodities and regional aggregations selected. Section 4 reports and interprets the results from the trade liberalisation experiments. Section 5 concludes with some policy recommendations.

## 2. SPECIAL AND DIFFERENTIAL TREATMENT (SDT)

### (a) SDT in GATT/WTO<sup>2</sup>

It would be fair to say that until the Uruguay Round, developing countries were either absent from the negotiating table or their participation was not taken seriously in multilateral trade negotiations. However, their development concerns and need for special treatment were recognised by the developed members of GATT since its inception. As early as 1958, the Haberler Report concluded that developing country export earnings were insufficient to meet development needs and identified developed country trade barriers as significant part of the problem.<sup>3</sup> In 1964, the UN Conference on Trade and Development (UNCTAD) was formed specifically to look after developing country interests. One year later (1965), Part IV of GATT introduced three articles, encouraging industrial countries to assist developing nation members "as a matter of conscious and purposeful effort" in their trading conditions and not to expect reciprocity for concessions made to developing countries in negotiations. Another measure, agreed at the end of the Tokyo Round in 1979 and normally referred to as the "enabling clause", provided a permanent legal cover for the market access concessions made by developed to developing countries under the generalized system of preferences (GSP). Concluded in 1995, the single undertaking of the Uruguay Round meant all WTO members had to accept all agreements which included smaller tariff cuts for developing countries. Developing country members were also accorded longer phase-in periods. We believe that a focus on the length of phase-in (adjustment) period is a better approach towards improving development objectives compared to non-reciprocity as contained in earlier deals.

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<sup>2</sup> This section on how SDT has evolved in multilateral trade negotiations under GATT/WTO represents a summary from the writings of several authors, including Hoekman et al. (2003), Keck and Low (2004), Michalopoulos (2000), Pangestu (2000), Prowse (2002), Stevens (2002), and Whalley (1999).

<sup>3</sup> Headed by Professor Gottfried Haberler, a Panel of Experts was formed as a result of a GATT ministerial level meeting in 1957. Failure of developing countries to deal with rising import demand and fluctuating commodity prices coupled with agricultural import protection in developed countries affecting LDC export revenues were considered as undesirable features in an accelerated trading environment following WWII.

At Doha, SDT provisions for developing countries have, if anything, been strengthened. The Doha Ministerial declaration states "...the contribution of developing countries to market access reduction commitments in the non-agricultural market access and agriculture negotiations should take account of their levels of development in particular sectors, as well as their food security, rural development and livelihood concerns.." Paragraph 44 of the Doha Declaration calls for a review of all SDT provisions "with a view to strengthening them and making them more precise, effective and operational. Finally, the text of the "July framework" agreement makes clear that the Least-Developed Countries, which will have full access to all special and differential treatment provisions as stated in section 2.2, are not required to undertake reduction commitments. "The specific concerns of preference dependent, commodity dependent countries and net food-importing developing countries shall be appropriately addressed, in the context of multilateral liberalization commitments undertaken in the Doha Round" (Doha Work Programme, Draft General Council Decision of July 2004, WT/GC/W/5351, 31 July 2004).

SDT in terms of non-reciprocity, as contained in the Doha Ministerial Declaration was meant for least-developed countries. WTO's concern here is that the least-developed countries have legitimate implementation issues to address given the complexity of the Uruguay Round agreements and their limited capacity to give effect to them domestically. The middle-income developing countries like India or Argentina do not have these problems of comparable magnitude to those of Sub-Saharan Africa. We have incorporated these concerns in our simulation exercise by categorising the member states as (i) developed, (ii) developing, and (iii) least developed economies for selective use of SDT in line with the DDA declaration. For a list of these countries, see Appendix Table 2.

#### (b) SDT outside WTO

In February 2001, the EU General Affairs Council adopted the so-called "EBA (Everything But Arms) Regulation", granting duty-free access to imports of all products from least

developed countries without any quantitative restrictions, except to arms and munitions.<sup>4</sup> This regulation is applicable from 5 March 2001. Currently 48 LDCs enjoy benefits of EBA on a non-reciprocal basis.<sup>5</sup> Only the three most sensitive products are not liberalised immediately. These are fresh bananas, rice and sugar. Further, the EBA Regulation foresees that the special arrangements for LDCs should be maintained for an unlimited period of time and not be subject to the periodic renewal of the Community's scheme of generalised preferences. The EU considers EBA as a very significant step to fulfil the objective of the DDA.

The African Growth and Opportunity Act (AGOA) was promulgated in the USA in 2000. The Act significantly liberalises trade between the U.S. and 37 designated Sub-Saharan African countries, but does not cover LDCs elsewhere. The Act originally covered an 8-year period from October 2000 to September 2008, but amendments added in July 2004 further extend AGOA to 2015. Roughly 1,800 product lines including apparel and footwear and a variety of agricultural products, which are of particular interest in this paper, were added to duty-free access list to the U.S. market by the AGOA legislation.

The effect of these regional preferential arrangements on target LDCs has generally been positive. Welfare gains from EBA alone were estimated in the range of US\$300 million (Yu and Jensen, 2005) to US\$400 million (Bora et al., 2002). The latter study was commissioned by UNCTAD. Similarly AGOA has had positive impact on target Sub-Saharan African countries. For example textile and apparel imports rose by 80 percents from 1999 to 2002 from AGOA while vehicles and parts imports rose by an astounding 370 percent (Cline 2004, p.269). Currently LDCs enjoy dual benefits from two of the largest markets- EU and US. Preferential access means their exports enter duty-free while other measures in support of

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<sup>4</sup> Regulation 416/2001 of 26 February 2001, EU Official Journal no. L 60 of 1.3.2001.

<sup>5</sup> The 48 LDCs are taken from the UN list, of which 39 are ACP countries. The non-ACP LDCs are: Yemen, Afghanistan, Bangladesh, Maldives, Nepal, Bhutan, Myanmar, Laos, and Cambodia. However, all GSP and EBA preferences for Myanmar have been suspended.

high cost domestic producers (tariffs on other countries and domestic subsidy) means premium prices are received by LDCs. As Yu and Jensen (2005, p.375) argue, “multilateral trade liberalisations resulting from WTO negotiations may reduce the attractiveness of these preferences on both fronts.” Many high-cost LDC exporters could find themselves disadvantaged as trade liberalisation advances on a most favoured nation (MFN) basis, which, ironically, is also ideal in terms of maximising global welfare. Data used in our experiments incorporate non-reciprocal tariff preferences such as those embodied in EBA and AGOA and our estimates confirm these fears, lending support to the case for an alternative financial package that may be offered to LDCs in a development friendly trade round.

### **3. MODEL, DATA AND LIBERALISATION EXPERIMENTS**

#### **The model and data**

We use a slightly-modified version of the GTAP applied general equilibrium model (Hertel 1997). This is a relatively standard, multi-region model built on a complete set of economic accounts and detailed inter-industry linkages for each of the economies represented.<sup>6</sup> The GTAP model and database are fully documented and publicly available.<sup>7</sup> Although GTAP is among the most sophisticated applied trade models currently available, it necessarily involves some simplifications and abstractions from the real world. While resources are heterogeneous, the production system distinguishes sectors by their intensities in just four primary production factors: land (demanded by agricultural sectors only), natural resources (extractive sectors only), capital, and labour. Some differentiation is introduced by dividing the labour resource into two classes – skilled and unskilled. In this study, labour and capital are assumed to be mobile between production sectors within each region. While substitution amongst the

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<sup>6</sup> An excellent summary of the major modules and equations of the model are found in Hertel (1997, Chapter 2).

<sup>7</sup> See [www.gtap.org](http://www.gtap.org) for details.

employment of these resources in any sector in response to price changes is allowed, intermediate inputs are used in fixed proportions in producing the various outputs.

While all units of output from any sector in a given country are assumed identical, traded products are differentiated by country of origin, allowing bilateral trade to be modelled. This formulation of the model also assumes perfectly competitive markets and constant returns to scale in production. The standard GTAP macro closure is used here, by which investment at the global level is adjusted to global savings through the use of a ‘global bank’ to assemble savings and disburse investments. Therefore the global closure is neoclassical, while at the regional level some adjustment in the mix of investment in response to trade policy reforms is permitted. The model is solved using GEMPACK (Harrison and Pearson 1996).

Almost all individuals and agencies conducting analysis of the global implications of agricultural liberalisation make use of the GTAP database. Our trade model is coupled with the recently-released GTAP Version 6 database benchmarked to the year 2001. This database contains a number of improvements compared with earlier versions. Trade-weighted agricultural tariffs have been sourced from the MAcMap Database,<sup>8</sup> including tariff preferences such as those of the EBA and AGOA agreements affecting developing countries, *ad valorem* equivalents of specific tariffs and tariff reductions as at 2001 associated with implementation of the URAA. Trade elasticities are amongst the most critical parameters of global trade models, and are crucial in determining the terms of trade effects associated with export expansion. This latest database uses estimates based on the methodology of Hummels (1999) that used trade, tariff and transport cost data from various countries to estimate a differentiated products model of import demand. Unlike the previous database the elasticities are sector-specific and for the majority of farm sectors are larger than the values in the previous database (Hertel *et al.* 2003). As in the previous database,

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<sup>8</sup> Market Access Map (MAcMap) is a joint development of ITC (UNCTAD-WTO, Geneva) and CEPII (Paris). It provides for 2001 bilateral measurement of applied tariffs, taking into account regional agreements and trade preferences.

agricultural export subsidies are based on country expenditure notifications to the WTO, and agricultural domestic subsidies are classified as in the OECD's PSE measure and data are taken from that source. This means that output subsidies, input subsidies, and payments based on land or capital (such as on livestock numbers) are represented separately. International trade data are sourced from the UN COMTRADE database, agricultural commodity balances and producer prices from the FAO, and input-output tables from national sources.

The GTAP Version 6 database covers 87 regions and 57 commodity sectors. For this study, we aggregate the database to 16 individual countries or country groupings, with remaining countries aggregated into a rest-of-the world group, and 21 sectors. This aids computation and enables us to highlight sectors and regions of particular interest. As regards regions, our choices allow the definition of three regional groupings - developed, developing and the least developed (see Appendix Table 2). At the sectoral level, we define a number of farm and processed food sectors to enrich the agricultural reform components of our liberalisation scenarios, including a crop-fibre sector to allow us to say something about impacts on the cotton sector. Among other sectors, those associated with textiles, apparel and leather products are separately modelled (see Appendix Table 1).

### **Scenario Design**

It is not possible to model all the details of many of the proposals offered during the Doha agricultural negotiations, such as those related to special safeguards, food aid, state trading enterprises, export credits, and the non-trade concerns. In addition, other simplifications and omissions are made, given the available data and trade model to be used here. For example, the data to be used include the applied levels of tariffs rather than the bound rates. Any agreed liberalisation will be phased in over a number of years, however the trade model used here is comparative static in nature and the dynamic adjustment path to the targeted reductions in support cannot be revealed.

The first scenario modelled here represents our interpretation of the ‘July framework’, informed by the various proposals and texts presented during the WTO Round. They incorporate changes within each of the major negotiation pillars – market access, export competition and domestic support.

#### *Export subsidies*

We eliminate developed countries’ agricultural export subsidies by cutting subsidy expenditures to zero. This has the effect in developed countries of equating domestic prices to f.o.b. prices and export quantities adjust endogenously. Recognising their minor use of export subsidies and the likelihood that they will face longer phase-out periods, we do not reduce export subsidies in developing countries.

#### *Import tariffs*

The principles we apply to the design of tariff cuts are drawn from the ‘July framework’, namely a tiered approach with tariff bands, higher tariffs subject to deeper cuts and differential treatment for developing countries including no tariff reductions for the least-developed countries. We use the URAA formula of fixed percentage cuts in some bands, and a Swiss formula in others. In all cases, reductions are made from applied tariff rates (since it is those that are included in the database) rather than the bound rates that are specified in the ‘July framework’ text. Clearly there is scope for our results to over-estimate responses to this market access component of a liberalisation package, depending on actual gaps between bound and applied rates. Gibson *et al.* (2001) reported a comparison of applied and bound rates for several developing countries that revealed applied tariffs substantially below bound levels in several cases. They also reported, however, that many developing countries and most developed countries tend to apply tariffs at the bound rate.

For agricultural tariffs in developed countries, all those below 5% are eliminated. A formula similar to that of the URAA is applied to reduce tariffs in the range of 5% to 55% by 36%. Remaining agricultural tariffs in developed countries (those above 55%) are reduced with a Swiss formula, calibrated so that a tariff of 55% is reduced by 36%, with increasingly deeper cuts to higher tariffs<sup>9</sup>. Special and differential treatment (SDT) for developing countries is recognised through a modality that reduces all agricultural tariffs under 100% by 20%, with those over 100% being reduced by 30%. For any base tariff, this approach ensures a smaller tariff reduction for developing countries compared with any of the developed country modalities. Reforms to non-agricultural market access are modelled via a Swiss formula tariff reduction, with a=16 for developed countries and a=50 for developing regions. Finally, no reforms are applied to the least-developed regions.

Table 1 Tariff Reductions for Scenario Simulation

<b><i>Developed countries</i></b>	
Agricultural commodities	If $t_0 \geq 55\%$ , Swiss formula: $a=100$ If $5\% \leq t_0 < 55\%$ , $t_1 = t_0 * 0.64$ If $t_0 < 5\%$ , $t_1 = 0\%$
Non-agricultural commodities	Swiss formula: $a=16$
<b><i>Developing countries</i></b>	
Agricultural commodities	If $t_0 \geq 100\%$ $t_1 = t_0 * 0.7$ If $0 < t_0 < 100\%$ , $t_1 = t_0 * 0.8$
Non-agricultural commodities	Swiss formula: $a=50$
<b><i>Least developed countries</i></b>	No changes to agricultural or non-agricultural commodities

Note:  $t_0$  is the base tariff;  $t_1$  is the post-reform tariff.

<sup>9</sup> The Swiss formula is  $t_1 = (a * t_0) / (a + t_0)$ , where  $t_0$  and  $t_1$  are the initial and final tariffs, respectively. This approach (which was used to reduce tariffs on industrial goods in the GATT Tokyo Round) makes deeper tariff cuts, the higher the initial tariff, with the severity of the cuts increasing as the parameter 'a' is made smaller.

### *Domestic support*

Modelling domestic support reform using the Global Trade Analysis Project (GTAP) data that we have available is problematic for a number of reasons. One is that the GTAP data come from the OECD's Producer Support Estimate (PSE) data, and therefore do not directly correspond to the WTO's amber (AMS), blue and green box classifications. In addition, and given the assumption that countries with administered market price support schemes in agriculture will lower such support prices in parallel with any tariff or export subsidy reduction, then the latter will contribute to any reduction commitment regarding the WTO's Aggregate Measure of Support (AMS). Nevertheless, in the following way we attempt to capture the spirit of the 'July framework' principles of reducing the total bound AMS, *de minimus* and agreed blue box payments (the latter being the greater of actual expenditure in the base year and 5% of the total value of farm production), and differential treatment of developing countries.

A base-year total of the above three domestic support components was calculated and then reduced by 50%. That value was then compared with a country's actual base support spending to determine the level of cut to be modelled. We will focus only on domestic support payments of the EU15, the USA, Japan and EFTA (Switzerland<sup>10</sup> and Norway only) since WTO notifications for 2000 indicate that together they accounted for over 97% of the sum of total amber (AMS), *de minimus* and blue box payments. This is an extreme-tiered approach, since we applied zero reductions for all other countries.

Our estimates required cuts in the sum of total AMS, *de minimus* and blue box actual payments amounted to 31% for the EU15, 25% for the USA, nil for Japan and 35% for EFTA.<sup>11</sup> These were all less than our assumed nominal 50% cut in domestic support. Main

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<sup>10</sup> Latest notifications for Switzerland were for 1998.

<sup>11</sup> The cuts were computed as:

$$\frac{[(AMS_A + dm + BLUE_A) - (AMS_B + dm + \max\{BLUE_A, 0.05*TVAP\})/2]}{[(AMS_A + dm + BLUE_A)]}$$
where  $AMS_A$ ,  $AMS_B$  are actual and bound AMS spending;  $dm$  is *de minimus* spending;  $BLUE_A$ ,

reasons for the EU and US are that in 2000 (the most recent year for which detailed notifications were available for these countries), US blue box spending was zero<sup>12</sup> and thus a base value of 5% of the value of agricultural output was used, and the EU's spending on AMS was only 63% of the bound value. In the case of Japan, actual blue box spending was well below the alternative base value of 5% of production, and actual AMS spending was less than 20% of the bound value. Finally, we applied these percentage cuts to each of the output subsidy, intermediate input subsidy, and land and capital payment categories, for each farm output in the GTAP database for these countries. In this way, domestic support payments to any farm output cannot be increased, reflecting the 'July framework' cap on product-specific support (Table 2).

Table 2 Domestic Support Reductions

Region	Formula
USA, EU, Japan and EFTA	
Applied to all farm <sup>a</sup> output and intermediate input subsidies, and subsidies to land and capital	USA: 25% cut in subsidy expenditures EU: 31% cut in subsidy expenditures Japan: 0% cut in subsidy expenditures EFTA: 35% cut in subsidy expenditures
Other developed countries	No changes
Developing countries	No changes
Least developed	No changes

a. All farm production sectors as listed in Appendix Table 1.

#### *Non-agricultural market access*

The Doha Ministerial Mandate describes the negotiations as a 'single undertaking' and it is unrealistic to imagine further agricultural liberalisation being agreed in the absence of reforms in other areas. With respect to market access for non-agricultural products, the Mandate states that such negotiations shall aim to reduce or eliminate tariffs, and that product coverage shall

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BLUE<sub>B</sub> are actual and base Blue box spending; and TVAP is total value of agricultural production. Should this computation give a negative result, the cut would be zero.

<sup>12</sup> Notified Blue box spending by the US has been nil from 1996 to 2000, due to changes in the 1996 Farm Bill.

be comprehensive without *a priori* exclusions. The Chair of the Negotiating Group on Non-Agricultural Market Access circulated a draft of modalities on 16 May 2003 (WTO 2003). This included the suggestion that a Swiss formula approach be taken to reduce such tariffs from the 2001 bound levels. While no specific numerical parameter was provided, the suggested formula would, for any given base tariff, provide a required tariff reduction that would be larger, the higher a country's average level of non-agricultural tariffs. While no members rejected the draft modalities as a basis for negotiation, this Group could not reach agreement before its end-of-May 2003 deadline with many negotiators expressing the view that non-agricultural progress must await movement in agriculture.<sup>13</sup>

The 'July framework' instructs the Group to "continue its work on a non-linear formula" with no further details on modalities. It is unrealistic therefore to consider liberalisation scenarios only involving agricultural products. Therefore a Swiss formula with  $a=16$  as used in the Tokyo Round (Laird and Yeats, 1987) is used in all scenarios to calculate tariff reductions for all non-agricultural tariffs in developed countries, and  $a=50$  for developing countries. As for agricultural reforms, no tariff cuts are applied to the least-developed countries.

We also construct a second scenario that is identical to the above in all respects except for the treatment of tariffs. Here, we assume that no SDT applies to developing countries, whose agricultural, TLA and manufactured tariffs are assumed to be reduced according to the same modalities as applied to the developed countries. SDT is assumed still to apply to the least-developed regions.

#### **4. RESULTS AND DISCUSSION**

Regional welfare gains from the first scenario are reported in Table 3 below. Table 4 then goes on to decompose global welfare gains by type of reform and their origin from developed or developing regions and Table 5 reports welfare results should reforms be limited to

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<sup>13</sup> BRIDGES Weekly Trade News Digest 7(19), 28 May 2003

agriculture in developed countries. WTO member states are still negotiating on actual tariff-cutting formulas so that tariff and domestic subsidy reductions applied are hypothetical and taken as "reasonable" in our judgement. However, the one area of firm agreement in the July 2004 framework accord is elimination of all export subsidies by developed countries in agriculture. Accordingly, we calculate and report regional welfare gains from its implementation in Table 6. Tables 7-13 then give estimates of welfare gains to selected developing economies - all under scenario 1. These tables are reported at the end of this section. Gains to these developing countries are also decomposed by type of reform and whether they are initiated in developed or developing regions. All gains are calculated as equivalent variation measures and measured in 2001 US dollars.

**Table 3: Welfare Changes from Reform (Equivalent Variation)**

Region	Scenario #1		Scenario #2	
	Change in Welfare (US\$million)	Change in real GDP (%)	Change in Welfare (US\$million)	Change in real GDP (%)
rest_NAFTA	-53	0.08	-70	0.09
USA	1165	0.01	1306	0.01
Japan	11401	0.28	13172	0.28
China	3562	0.29	4069	0.48
ASEAN5	1755	0.11	2473	0.22
NEAsia	3586	0.21	11568	1.04
LDC_Asia	425	0.03	561	0.05
LDC_Africa	-209	-0.05	-93	-0.03
EFTA	6105	1.28	6171	1.28
Rest_Eur	-134	0.04	-76	0.15
CER	1461	0.08	1503	0.08
EU_new	145	0.07	285	0.07
Indi_SL	926	0.35	1191	0.60
EU	5143	0.10	7076	0.10
Sth_America	2110	0.06	1616	0.10
SACU	402	0.17	582	0.28
ROW	2174	0.31	2770	0.43
Global	39965		54104	

**Table 4: Decomposition of Global Welfare Gains by Type of Reform in Developed and Developing Regions (US\$ million)**

Policy reform <sup>a</sup>	Developed regions		Developing regions		Total	
	Scenario		Scenario		Scenario	
	#1	#2	#1	#2	#1	#2
Tariff reductions: Agriculture	18104	18098	3944	12967	22048	31065
Tariff reductions: Textile, Leather & Apparel	2543	2488	4201	5771	6744	8259
Tariff reductions: Manufactures	5316	5313	4477	8022	9793	13335
Export subsidy: Agriculture	-220	-175	..	..	-220	-175
Domestic subsidy: Agriculture	1600	1620	..	..	1600	1620
Total	27343	27344	12622	26760	39965	54104

(a) Scenario 1

Table 3 indicates that the majority of regions and all developed regions, gain from this liberalisation. From Table 4, we note that about half of global welfare gain (US\$ 18.1 billion of US\$ 40.0 billion) can be attributed to agricultural tariff reductions in developed regions. Also two-thirds of the global gain (US\$ 27.3 billion) can be obtained from all reforms in developed regions. However, reforms to developed countries farm subsidies (strongly supported by developing countries in the negotiations) makes a very minor contribution (4.0%) to global welfare gains. This shows that tariff reforms (market access) especially in agriculture should continue to be prioritised in WTO negotiations, and that they make a far greater contribution to welfare gains than do reforms to domestic policies. Tariff reductions by the developing countries contribute about 30% (\$12.6 billion) of the global gain in welfare.

The results given in Table 5 provide some evidence in support of Panagariya's position regarding his 'second fallacy'. In total, the reductions in agricultural tariffs and subsidies by the developed countries alone provide a \$1.8 billion gain to all our developing and least-

developed countries and regions. However, by far the major beneficiaries are the agricultural exporting nations of South America. These reforms if restricted to the developed countries are estimated to hurt other developing regions, most notably the least-developed countries of sub-Saharan Africa. These points are further illustrated in Figure 1, where elimination of export subsidies and reductions in domestic subsidies are shown to have a negative effect on welfare in many of the developing countries. The welfare gains to these countries are overwhelmingly due to improved market access into the developed countries, for both agricultural and non-agricultural goods.

**Table 5: Impacts of Agricultural Reform in Developed Countries on the Developing Regions (US\$million)**

Developing Country/Region	Change in welfare due to Developed agricultural reforms <sup>a</sup>
China	-81
ASEAN5	378
NEAsia	-329
LDC Asia	80
LDC Africa	-204
Indi SL	-5
Sth America	1810
SACU	140

**a. Summed over reforms to agricultural tariffs, domestic support and export subsidies.**

**Table 6: Export subsidy: Contributions to Regional Gains in Welfare Due to Removal of Ag. Export Subsidy by Developed Countries**

Region	Welfare gain (US\$million)
European Union	2279
CER + S. America	371
LDC Asia + LDC Africa	-270
Other developing regions	-1510
Other developed regions	-1091
Total	-220

Much of the recent rhetoric over the WTO negotiations has been on agricultural export subsidies. The decision reached in the July 2004 accord to remove agricultural export subsidies would appear, however, to contribute little to global welfare gains – in fact, we estimate a loss in welfare (Table 6). By far the main beneficiary is expected to be the EU (not surprising since this region accounts for nearly all of the global spending on such subsidies), but there is also some gain to CER (Australia and New Zealand) and South America owing to improved terms-of-trade (ToT) for their agricultural exports. This result can be seen as a rationalisation of the EU's support to remove all export subsidies in the framework agreement. The corollary of this, of course, is that the least developed food-importing regions, as well as other developed and developing regions experience a negative welfare impact from removal of agricultural export subsidies because of the adverse ToT effect on food imports. Thus the one solid agricultural outcome of the Doha Development Agenda thus far is shown to be of little or no benefit to many developing countries.

Table 3 showed that most regions have welfare gains. However, three primarily-developing regions show welfare losses – LDC\_Africa, the rest of Europe (i.e. Europe apart from EU-25 and EFTA) and the rest-of-NAFTA group which includes Mexico. Estimates of welfare changes to developing regional economies, including a break down of these gains from selected policy reforms under scenario 1 are reported in Tables 7-13. For China (Table 9), TLA tariff cuts in developed regions contributed half of her welfare gain, and other significant contributions resulted from reform of agricultural and manufactured tariffs in developing countries. The results are very similar for LDC\_Asia (Table 10), although developed country reform of agricultural tariffs are also important here. India\_SL (Table 11) benefits primarily from developing region cuts in agricultural and manufacturing tariffs (also reflecting this region's high tariffs in these sectors) and TLA tariff cuts in developed regions. The countries of the South African Customs Union (SACU, Table 13) benefit primarily from cuts in manufacturing tariffs by developing countries. For ASEAN\_5, tariff cuts in developed and developing regions are both important contributors of welfare improvement (Table 7).

Gains to South America are entirely due to developed country reforms, especially in access to their agricultural markets. This is also the only developing region in our analysis that would suffer a welfare loss from trade liberalisation by the developing world.

LDC\_Africa experienced a welfare loss in this scenario, by far the major contributor being the developed country removal of agricultural export subsidies (Table 8). Other contributing factors to this loss were developed country TLA and manufacturing tariff cuts, in which there would be an element of loss of preferences. However cuts in developed country agricultural tariffs and support to their farmers (including cotton) made a positive contribution. Table 14 shows that LDC-Africa's cotton output rose 7.5% and her exports by 12%. In each case, one-half of the increase was due to the reductions in domestic support in developed regions (mainly EU and US). The global (import) price index for this sector increased about 3%, with two-thirds of that increase due to cuts in domestic farm support (Table 15).

#### (b) Scenario 2

In this scenario, developing regions are assumed to make the same reductions in tariffs as do their developed country counterparts. The result was an extra \$14 billion (35%) added to world welfare gains (Table 3). Over 70% (\$10 billion) of that additional \$14 billion is gain to the developing (primarily NE\_Asia) and least-developing countries (Figure 2). Of the \$14 billion, 64% is due to developing countries additional cuts to their own agricultural tariffs, 11% due to further cuts in developing country TLA tariffs and the remaining 25% to their additional manufacturing tariff cuts (Table 4). These results suggest a case could be made for special and differential treatment (SDT) that involves a longer phase-in period, but not lower tariff reductions.

## 5. CONCLUDING OBSERVATIONS

The findings of this paper point to some useful policy considerations in the current round of trade liberalisation under the DDA. The importance of tariff reforms in developed and

developing countries is highlighted by the results of the reform scenarios simulated in the study. In particular, tariff reforms that affect agricultural trade by allowing greater market access in the developed countries have much to recommend themselves. Likewise, reduction in tariffs on all imports by developing countries also helps improve welfare of both groups of countries, developed and developing.

One interesting, if unconventional, finding of the study has been the virtual insignificance of the removal of agricultural export and domestic subsidies in developed countries as a means to improving the welfare of the developing countries. In fact, the decline in the terms of trade facing these latter countries as a consequence of any removal of such export subsidies would make them worse off in welfare terms, at any rate in the short term. We showed some evidence that countries belonging to the LDC\_Africa group would benefit from the prospect of increased trade in cotton resulting when domestic support by the US and EU are reduced.

The principal beneficiary of such reductions would be the EU. Given its widespread use of such subsidies, this finding is hardly surprising. Nevertheless, such subsidies are globally trade distorting, and should therefore be considered in need of reform as part of a long term strategy. The long term production response of the developing countries in the face of rising prices of agricultural, particularly food, products, should such subsidies be removed or reduced, would be a relevant issue in setting any targets for policy reform involving export subsidies. The gains accruing to the beneficiary countries such as the EU (and possibly the US) could well be used to set up transitional assistance funds to alleviate the short run decline in the welfare of the developing countries.

Antimiani et al. (2005) also used the GTAP model with the Version 6 database to simulate welfare impacts of trade reform on regional economies. The results are qualitatively similar to ours in that OECD countries together with the Cairns group nations benefit the most from global agricultural reforms. When it comes to African, South Asian, and Latin American countries, Antimiani et al. (2005) find that most of these countries (fewer for Latin America)

would be left worse off. Lack of diversification of these economies means that unlike OECD (or developed) countries, relocation of resources cannot easily take place in response to new price signals following global agricultural reforms. Unlike our study, their research is restricted to agricultural trade liberalisation scenarios only. We find gains from reduction in tariffs on labour intensive manufactured goods such as textiles, apparel and leather would be enjoyed by developing countries with a more diversified economic structure such as China, India and the ASEAN\_5. Such reductions would also open up more South-South trade, to the benefit of all developing countries.

Finally, the study suggests that developing countries can make substantial additional gains by accepting similar agricultural and manufacturing tariff cuts to those of the developed world, and not lobbying for SDT in this regard, making way for increased imports from developed and other developing countries. It may be necessary however to phase-in such tariff cuts, given the short run difficulties the developing countries are bound to face when their trade is freed up. We also suggest scope for the creation of international financing of adjustments in the developing world, financed from the reform-driven gains to developed countries. The SDT negotiations could well be the route to such a reform agenda. However a word of caution is appropriate, as Charlton and Stiglitz (2005) argue that CGE models like the ones we used, do not address adjustment costs nor the fact that implementation and adjustment costs following trade liberalisation are likely to be higher in developing countries. These result from weak safety nets and inefficient risk markets (Charlton and Stiglitz 2005, p.300). Tariff revenues account for a significant proportion of government revenue. Trade liberalisation would jeopardise this important source of government revenue in addition worsening income distributions. Attempts to recoup this loss as well as redistributive justice would mean increases in other taxes leading to increased deadweight losses. These may offset efficiency gains from trade liberalisation.

**Table 7: Decomposition of ASEAN 5 Welfare by Type of Reform in Developed and Developing Regions (US\$ million)**

Policy reform	Developed regions	Developing regions	Total
Tariff reductions: Agriculture	455	154	609
Tariff reductions: Textile, Leather & Apparel	599	-53	546
Tariff reductions: Manufactures	78	599	677
Export subsidy: Agriculture	-73	..	-73
Domestic subsidy: Agriculture	-3	..	-3
Total	1056	700	1756

**Table 8: Decomposition of LDC\_Africa Welfare by Type of Reform in Developed and Developing Regions (US\$ million)**

Policy reform	Developed regions	Developing regions	Total
Tariff reductions: Agriculture	27	15	42
Tariff reductions: Textile, Leather & Apparel	-18	8	-10
Tariff reductions: Manufactures	-11	1	-10
Export subsidy: Agriculture	-232	..	-232
Domestic subsidy: Agriculture	2	..	2
Total	-232	26	-206

**Table 9: Decomposition of China's Welfare by Type of Reform in Developed and Developing Regions (US\$ million)**

Policy reform	Developed regions	Developing regions	Total
Tariff reductions: Agriculture	126	830	956
Tariff reductions: Textile, Leather & Apparel	1742	267	2009
Tariff reductions: Manufactures	29	774	803
Export subsidy: Agriculture	-91	..	-91
Domestic subsidy: Agriculture	-116	..	-116
Total	1690	1871	3561

**Table 10: Decomposition of LDC\_Asia Welfare by Type of Reform in Developed and Developing Regions (US\$ million)**

Policy reform	Developed regions	Developing regions	Total
Tariff reductions: Agriculture	117	37	154
Tariff reductions: Textile, Leather & Apparel	311	-88	223
Tariff reductions: Manufactures	-2	88	86
Export subsidy: Agriculture	-38	..	-38
Domestic subsidy: Agriculture	0	..	0
Total	388	37	425

**Table 11: Decomposition of Welfare Change in India + Sri Lanka by Type of Reform in Developed and Developing Regions (US\$ million)**

Policy reform	Developed regions	Developing regions	Total
Tariff reductions: Agriculture	-13	250	237
Tariff reductions: Textile, Leather & Apparel	238	-117	121
Tariff reductions: Manufactures	-43	603	560
Export subsidy: Agriculture	1	..	1
Domestic subsidy: Agriculture	8	..	8
Total	191	736	927

**Table 12: Decomposition of Welfare Change in Sth\_America by Type of Reform in Developed and Developing Regions (US\$ million)**

Policy reform	Developed regions	Developing regions	Total
Tariff reductions: Agriculture	1535	121	1656
Tariff reductions: Textile, Leather & Apparel	316	-123	193
Tariff reductions: Manufactures	114	-129	-15
Export subsidy: Agriculture	46	..	46
Domestic subsidy: Agriculture	229	..	229
Total	2240	-131	2110

**Table 13: Decomposition of Welfare Change in SACU by Type of Reform in Developed and Developing Regions (US\$ million)**

Policy reform	Developed regions	Developing regions	Total
Tariff reductions: Agriculture	133	9	142
Tariff reductions: Textile, Leather & Apparel	7	45	52
Tariff reductions: Manufactures	12	188	200
Export subsidy: Agriculture	-5	..	-5
Domestic subsidy: Agriculture	12	..	12
Total	159	242	402

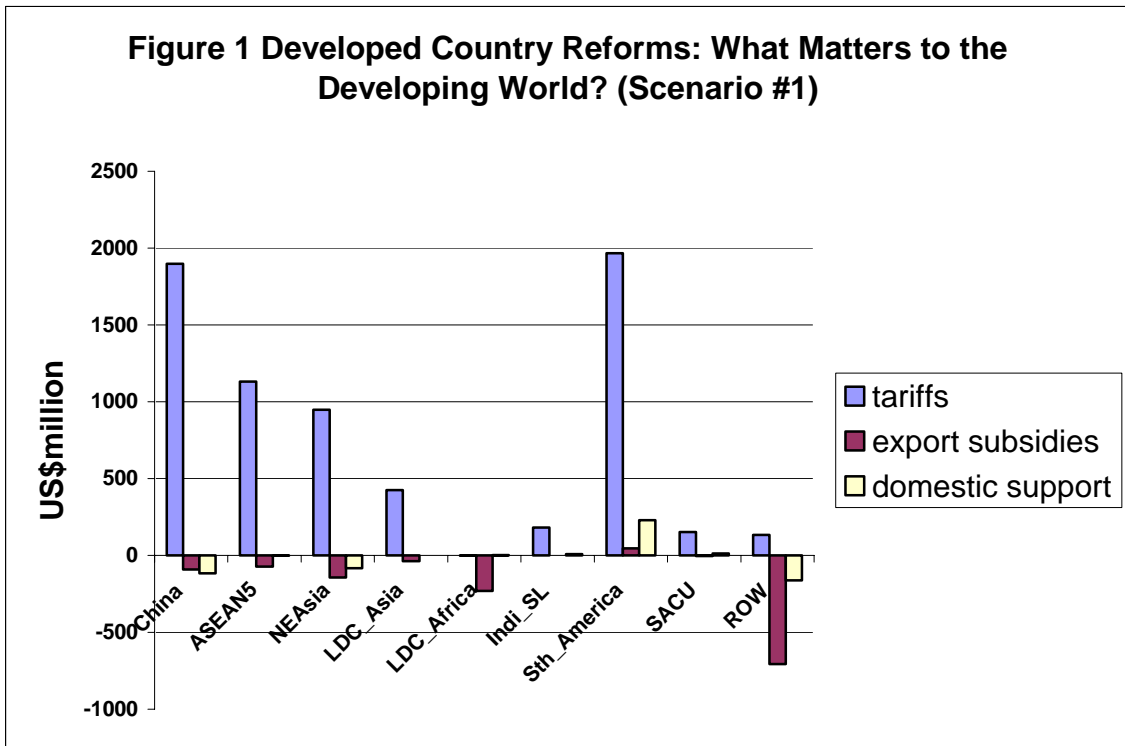
**Table 14: Changes to LDC-Africa's Cotton Economy: Scenario #1**

Variable	Total change	Change due to developed countries reforms of:		
		Agricultural tariffs	TLA tariffs	Agricultural domestic support
Net exports	US\$91.5million	22.9	27.3	34.8
Output	4.4%	1.09	1.58	1.66
Producer price	0.687%	0.19	0.16	0.31
Total export volume	6.97%	1.72	2.16	2.60

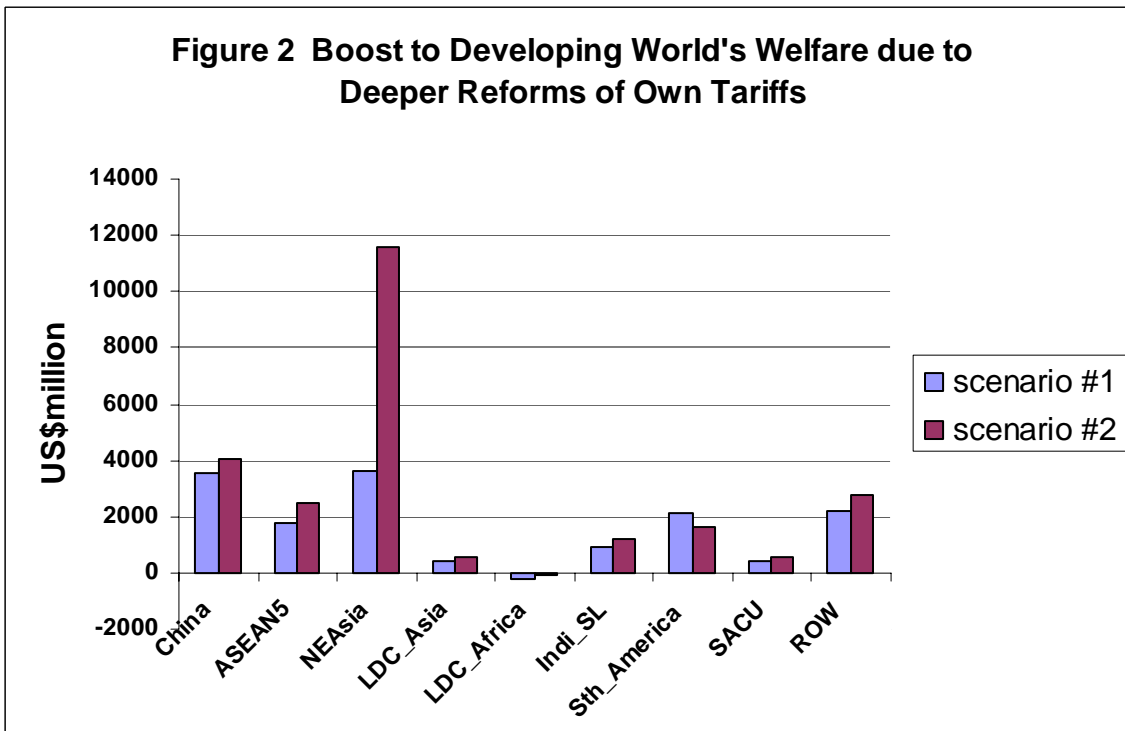
**Table 15: Change in Global Import Price Index of Crop Fibre (Cotton): Decomposition by Type of Reform in Developed and Developing Regions (percentage change) : Scenario #1**

Policy reform	Developed regions	Developing regions	Total
Tariff reductions: Agriculture	0.45	-0.05	0.40
Tariff reductions: Textile, Leather & Apparel	0.11	-0.06	0.05
Tariff reductions: Manufactures	-0.03	-0.09	-0.12
Export subsidy: Agriculture	0.25	..	0.25
Domestic subsidy: Agriculture	0.95	..	0.95
Total	1.73	-0.20	1.53

**Figure 1 Developed Country Reforms: What Matters to the Developing World? (Scenario #1)**



**Figure 2 Boost to Developing World's Welfare due to Deeper Reforms of Own Tariffs**



## References

- Antimiani, A., Conforti, P and Salvatici, L. (2005) “Alternative Scenarios and Strategic Interactions between Developed and Developing Countries in the Agricultural Trade Negotiations of the Doha Round: A Reappraisal”. Paper presented to 8th Annual Conference on Global Trade Analysis, Lubeck, Germany, 9-11 June 2005.
- Bora, B., L. Cernat and A. Turrini (2002), 'Duty and Quota-free Access for LDCs: Further Evidence from CGE Modeling', *Policy Issues in International Trade and Commodities Study Series No. 13*, UNCTAD, United Nations (New York and Geneva).
- Charlton, Andrew H. & Stiglitz, Joseph E. (2005) A Development-friendly Prioritisation of Doha Round Proposals. *The World Economy* 28 (3), 293-312.
- Gibson, P., Wainio, J., Whitley, D. and Bohman, M. (2001). Profiles of Tariffs in Global Agricultural Markets, *Agricultural Economic Report No. 796*. Economic Research Service, USDA, Washington, DC.
- Harrison, W.J., Pearson, K.R. (1996). “Computing Solutions for Large General Equilibrium Models using GEMPACK,” *Computational Economics* 9, 83-127.
- Hertel, T.W., Hummels, D., Ivanic, M., and Keeney, R. (2003). “How Confident Can We Be in CGE-Based Assessments of Free Trade Agreements?”, *GTAP Working Paper No. 26*, Purdue University, USA.
- Hertel, T.W. and Martin, W. (2000). “Liberalising Agriculture and Manufactures in a Millennium Round: Implications for Developing Countries,” *World Economy*, 455-469, (April).
- Hertel, T.W. (Ed.), (1997). *Global Trade Analysis: Modeling and Applications*. Cambridge University Press, Cambridge and New York.

- Hoekman, B., Michalopoulos, C., Winters, L. A. (2003) "Special and Differential Treatment for Developing Countries: Towards a New Approach in the WTO", World Bank: *mimeograph*.
- Hummels, D. (1999). "Towards a Geography of Trade Costs," *GTAP Working Paper No. 17*, Purdue University, USA.
- Keck , Alexander and Low, Patrick. (2004) "Special and Differential Treatment in the WTO: Why, When and How?" *Staff Working Paper ERSD-2004-03*, Economic Research and Statistics Division, WTO, May.
- Laird, S. and Yeats, A. (1987), 'Tariff cutting formulas—and complications', in Finger, J.M. and Olechowski, A. (eds.) *The Uruguay Round: a Handbook for the Multilateral Trade Negotiators*, World Bank, Washington DC.
- Olarreaga, Marcelo & Özden, Çağlar (2005). AGOA and Apparel: Who Captures the Tariff Rent in the Presence of Preferential Market Access?. *The World Economy* 28 (1), 63-77.
- Panagariya, A (2005) "Agricultural liberalisation and the developing countries :debunking the fallacies". Available at <http://www.columbia.edu/~ap2231/>
- Pangestu, M. (2000) "Special and Differential Treatment in the Millenium: Special for Whom and How Different?", *The World Economy* 23, 9: 1285-1302.
- Prowse, S. (2002) "The Role of International and National Agencies in Trade-related Capacity Building", *The World Economy* 25, 9: 1235-1261.
- Shakur, S., Rae, A N., and Chatterjee, S. (2004) "A Road Ahead from Cancun? Weighing up Some Give-and-Take Scenarios in a DDA Spirit", Discussion Paper No. 04.10, Applied and International Economics, Massey University, Palmerston North, June.
- Rae, A., Chatterjee, S. and Shakur, S. (2001), 'The Sectoral Approach To Trade Liberalisation: Should We Try To Do Better?', *International Trade Journal*, 15(3), 293-322.

- Rae, Allan and Strutt, Anna (2005) "Multilateral Agricultural Trade Reform: Potential Impacts of Current Negotiations on New Zealand" *New Zealand Economic Papers*, 38(2): 175-205.
- Rae, A.N. & Strutt, A. (2003) The current round of agricultural trade negotiations: should we bother about domestic support? *The Estey Centre Journal of International Law and Trade Policy*, 4(2), pp. 98-122.
- Valdes, Alberto and McCalla, Alex F., (1999) "Issues, Interests and Options of Developing Countries," presented at the joint World Bank and WTO Conference on Agriculture and the New Trade Agenda in the WTO 2000 Negotiations, October 1-2, 1999, Geneva, Switzerland.
- Whalley, J. (1999) "Special and Differential Treatment in the Millennium Round", *World Economy* 22, 8: 1065-1093.
- WTO (2003). Draft Elements of Modalities for Negotiations on Non-agricultural Products. *TN/MA/W/35/Rev.1*, World Trade Organisation, Geneva.
- Yu, Wusheng & Jensen, Trine Vig (2005) Tariff Preferences, WTO Negotiations and the LDCs: The Case of the 'Everything But Arms' Initiative. *The World Economy* 28 (3), 375-405.

## Appendix: Definition of regions and sectors:

**Appendix Table 1: Sectoral Aggregation**

Sector name	Description
<i>Farm production:</i>	
Rice	Paddy rice
grain_oilsd	Wheat, other grains, oilseeds
hort	Fresh fruit, vegetables & nuts
crop_fibre	Plant-based fibres (e.g. cotton)
oth_crops	Other crops (e.g. sugar)
animal_prod	Livestock farming
Milk	Milk
<i>Other natural resource based:</i>	
nat_res	Forestry, fishing, <b>coal</b> , oil & gas, other minerals
<i>Processed food sectors:</i>	
meat	Red and white meats
dairy	Dairy products
sugar	Refined sugar
oth_procfood	All other processed foods
<i>Textiles &amp; clothing:</i>	
textile	Textiles
apparel	Wearing apparel
leather	Leather products
<i>Other manufacturing and service sectors:</i>	
natres_prods	Wood & paper products, petroleum, <b>coal</b> , chemical, rubber & plastic products
metals	Ferrous metals, metal products
transprt	Motor vehicles, transport equipment & parts
electronic	Electronic equipment
oth_mnfcs	Others
Svces	All services

**Appendix Table 2: Regional Aggregation**

<b>Region name</b>	<b>Description</b>
<i>Developed regions</i>	
rest_NAFTA	Canada, Mexico
USA	USA
Japan	Japan
CER	Australia, New Zealand
EU	EU-15
EU_new	The ten new members as of 2004
EFTA	Switzerland, rest of EFTA
<i>Developing regions</i>	
China	Mainland China
ASEAN5	Indonesia, Malaysia, Thailand, Philippines, Singapore
Indi_SL	India, Sri Lanka
NEAsia	South Korea, Hong Kong, Taiwan
Sth_America	Caribbean, Central & South America
Rest_Eur	Rest of Europe including Russia
SACU	South Africa, Botswana & rest of South African CU
ROW	Turkey, Morocco, & rest of Middle East & North Africa
<i>Least developed regions</i>	
LDC_Asia	Vietnam, Bangladesh, rest of East, South & Southeast Asia, Pacific Islands
LDC_Africa	Rest of Sub-Saharan Africa