

UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT

# BACK TO BASICS:

## MARKET ACCESS ISSUES IN THE DOHA AGENDA



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## **PREFACE**

The aim of this paper is to go “back to basics”, focusing on the market access issues in merchandise trade that developing countries will face in the next negotiations. Data on patterns of trade and protection in agriculture and manufacturing are analysed, the main results of the Doha WTO Ministerial Conference are reviewed, and the likely impact of several liberalization scenarios is evaluated. The broad conclusion of the analysis is that developing countries as a whole still have sizeable potential gains to derive from improved market access in merchandise trade, but the size and the distribution of these gains depend a great deal on the extent to which developing countries will be active in the liberalization process and on the agreed negotiation targets and modalities.

This paper was prepared by Sam Laird, Lucian Cernat and Alessandro Turrini of the Trade Analysis Branch, Division on International Trade in Goods and Services, and Commodities.

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## ***EXECUTIVE SUMMARY***

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Trade and development linkages and the problems of the least developed countries have been a key preoccupation of the international community in the last few years, following major economic crises in Asia, the Russian Federation and Brazil, and these concerns were heightened by the slump in global demand in 2001. While the long-term pursuit of freer trade seems to have become widely accepted, concern has been expressed about the short-term effects of liberalization and of the costs of implementation of WTO commitments. This has led to greater emphasis being devoted to institution and capacity building as well as to the removal of supply-side constraints. In a similar vein, the view has been expressed that developing countries need policy space to pursue industrialization policies that are appropriate to their stage of development. However, the scope for such flexibility is also being limited by increased WTO commitments.

One of the most challenging tasks for the WTO's Doha meeting was to give some meaning to trade and development linkages. On the one hand, it was considered important to overcome the opposition of many developing countries to wider negotiations than those covered by the "built-in agenda", agreed during the Uruguay Round. On the other hand, many countries also felt the need to ensure that trade worked for development. The concerns of the developing countries needed to be reflected in the negotiating mandates. In this respect, the texts agreed at Doha provide an opportunity to improve the developing countries' effective participation in international trade. Many issues that were voiced by developing countries in Seattle and reaffirmed in the UNCTAD X Plan of Action adopted in Bangkok in February 2000 were included in the new WTO agenda. At the same time, the agenda is expanding to incorporate an ever-growing number of "new" issues (investment, competition policy, etc.) where the impact on development of possible new WTO rules is less clear.

Concerning the analysis of the dynamics of trade patterns, this paper identifies several stylized facts that characterize the evolution of the position of developing countries in world trade in recent decades. Overall, the share of developing countries in world exports has been increasing in the past two decades, as has the share of exports in industrial goods originating from developing countries. However, these aggregate trends hide important differences across developing country groups. For example, African and Latin American countries have witnessed a decline in their share in world trade, while the upward trend for the developing countries as a whole was driven mostly by the trade performance of certain East Asian countries. With regard to the sectoral composition of exports, an analysis of revealed comparative advantage indices shows a marked difference between the developing and the developed countries, as well as among developing countries, as far as the degree of trade specialization is concerned. Developed countries have a relatively steady, diversified trade pattern, whereas there are groups of developing countries with a rapidly changing trade specialization and groups with persistent, undiversified export patterns.

As far as the current pattern of protection is concerned, tariff barriers to exports from developing countries appear to be heavily concentrated in agriculture, textiles and clothing, and other sectors of export interest to developing countries. The post-Uruguay Round protection pattern is characterized by a high dispersion in tariff rates, with a large number of tariff peaks concerning products of interest to developing countries in agriculture, food, textiles, apparel and some mid-technology products. Tariff escalation also affects trade flows in a number of products of interest to developing countries. It is a pervasive feature in both developed and developing countries and concerns both agricultural and industrial goods.

Using new data on preferences within the framework of the computable general equilibrium (CGE) model, it is estimated that a 50 per cent reduction of tariffs in agriculture would increase world welfare by about \$20 billion, a figure that is broadly in line with those obtained in recent studies. All world regions would gain from agricultural liberalization. As found in previous analyses, the elimination of tariffs is more important in improving the allocation of resources than is the elimination of export subsidies. Moreover, the elimination of export subsidies, if not coupled with tariff liberalization, may have negative effects on some regions, especially in Africa. Finally, extending liberalization to all merchandise trade would almost double world gains and would benefit developing countries in particular. However, the distribution of gains and losses from a comprehensive liberalization scenario would be unequal across different groups of developing countries. While most Asian countries would gain substantially if tariff cuts in manufacturing were added to liberalization in agriculture, sub-Saharan Africa might not.

The analysis of the basic data on trade flows, patterns of protection and results of the simulations is suggestive of some policy conclusions which are discussed in detail in the final section of the paper. Some of the key conclusions that may be useful in determining targets and modalities for the market access negotiations are:

- Both in agriculture and in industrial products, a formula approach would help address tariff peaks and tariff escalation. The Swiss formula is highly effective in this respect, but may be too much too soon for many developing countries, unless modulated in some way. Exceptions to a formula should be limited, and, perhaps, subject to a minimum cut for each tariff line. The focus should be on cutting higher tariff rates; eliminating low rates may appear administratively tidy, but can increase effective protection on processing. Percentage or *ad valorem* rates should be preferred in the interests of transparency, but if specific rates can help avoid resort to other forms of contingency protection, information on *ad valorem* equivalents should be published.
- Accelerated reductions in tariffs and other forms of support should be encouraged for exports of interest to the developing countries, especially the least developed countries (LDCs).



- Developing countries should be granted longer transition periods, with even greater periods for LDCs. Developing countries should not be required to fully reciprocate on agreed targets (by virtue of GATT Article XXVIII *bis*). Accelerated liberalization or full reciprocity by these countries might be rewarded with financial support, particularly to offset revenue losses and facilitate structural adjustment. Focusing tariff liberalization on bound rates will also allow some policy space for developing countries whose bound rates are higher than applied rates.
- Export subsidies and the existence of domestic supports, not technically part of market access negotiations, affect the conditions of market access and could be tackled by across-the-board reductions. The scope for transfers between products should be reduced or eliminated in order to ratchet down interventions. The scope for development exceptions is discussed in the paper.

The complexity of trade regimes, the range of negotiating targets, modalities and scenarios, and the diversity of interests, including the possibility of negative effects of liberalization in the new WTO negotiations, suggest:

- The need for considerable technical support to developing countries in the new negotiations. This means providing them not only with analyses but also, to the extent possible, with data and tools to allow them to undertake their own assessments.
- The need to put in place a mechanism to address implementation problems that may arise from whatever is negotiated. This means establishing a realistic timetable, making estimates of the costs of implementation, and funding both technical assistance efforts and structural adjustment programmes and social safety nets in countries which are negatively affected by the outcome.

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## ***I. INTRODUCTION***

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The linkage between trade policy and economic development remains the subject of considerable debate, although today there is a remarkable convergence on the longer-term aim of progressive liberalization and the need for accompanying institutional reforms. The main areas of continued concern relate to the relative importance of different elements of a trade policy package and the timing and sequencing of their implementation. Errors can have costs for developing countries that they can ill afford.

In the past, such policy decisions have largely been those of the developing Governments themselves, albeit often in the context of World Bank/IMF reform programmes. At the global level, the major trade reforms of the last 10-15 years have taken place under such unilateral reform programmes, although further change has also resulted from the establishment of regional trade agreements. However, since the Uruguay Round, the developing countries have come under increasing pressure to undertake further reforms as a consequence of commitments in the WTO. This trend is likely to continue in the WTO under the negotiations in agriculture and services that have been under way since early 2000 as part of the “built-in agenda” agreed in the Uruguay Round, supplemented by the new negotiations envisaged in the work programme agreed at the Fourth Ministerial Conference of the WTO in Doha in November 2001.

Another aspect of the linkage between trade and development relates to the effects of policies and practices of other countries and private economic agents. Studies of patterns in the use of trade measures show a systematic bias against the exports of the developing countries. Again, global markets show a continued downward trend in commodity prices

that has had a negative impact on the least developed countries (LDCs) and other developing countries that rely heavily on commodity exports. Finally, some products and services are characterized by a market structure in which only a few large enterprises operate; in those markets the benefits of trade are not always passed on to the developing countries. (This latter issue is not examined in this paper.) How the WTO work programme will address these concerns is a matter for negotiation.

The objective of this paper is to review the major market access issues of relevance for developing countries at the present time and to propose a modelling framework to analyse the impact of several trade policy scenarios. The paper is structured as follows. Section II presents the theoretical linkages between trade and development. The objective of this section is to illustrate the fact that economic theories yield ambiguous conclusions concerning the trade-development nexus when all elements are taken into account. Section III describes the post-Uruguay multilateral agenda, the market access issues that continue to be of particular relevance for developing countries (tariff peaks and tariff escalation) and the evolution of their trade patterns. Section IV highlights the main conclusions reached during the Fourth Ministerial Meeting of the WTO in Doha in November 2001 that are likely to have an impact on future market access conditions. Using a CGE modelling framework, section V implements several liberalization scenarios. These very broad specifications are consistent with a wide range of possible international trade policy dynamics in the post-Doha period. Section VI summarizes the main findings and policy conclusions.

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## ***II. THE TRADE AND DEVELOPMENT LINKAGE***

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The linkage between trade and development is more a matter of empirical observation rather than strict theory, and efforts to establish the quantitative linkage have been a matter of dispute.<sup>1</sup>

Modern growth theory is focused on the role of human and physical capital accumulation, and technical progress. Trade is seen as an instrument of capital accumulation or as a means of stimulating efficiency through better resource allocation and enhanced competition. However, formally, it is only in models characterized by non-diminishing returns to reproducible production factors (or learning-by-doing or endogenous technical change) that a link can emerge between trade policy and the steady-state growth of countries.<sup>2</sup>

At one level, trade and development are linked through the effect of trade policy on the level and pattern of domestic aggregate spending, and hence on the savings-investment mechanism.<sup>3</sup> Developing countries that have achieved a high and sustained economic growth and development record over the past 40 years have generally maintained high savings-investment ratios (often around 30 per cent of gross domestic product (GDP)), while those in which economic growth and development have languished, including the LDCs, have extremely low domestic savings ratios.<sup>4</sup>

Even if trade policy cannot by itself affect the domestic savings rate, it can be used to address a temporary disequilibrium in a country's balance of payments resulting from temporary external factors, such as variations in commodity prices or abrupt movement of foreign capital. This approach may provide a short-term solution while making the necessary

domestic adjustment (reducing domestic consumption or investment), which normally takes time to work itself through the system.

Trade policy can create an environment that favours investment. On the one hand, this occurs through the creation of a more predictable and secure trade and investment regime, an issue that links trade policy and good governance. On the other hand, trade policy should permit investment to operate as productively as possible, that is through its effects on resource allocation. Trade policy determines the allocation of scarce resources within the domestic economy, generating efficiency gains that derive from intersectoral shifts of production in favour of those production activities that use more intensively the relatively more abundant factors of production.

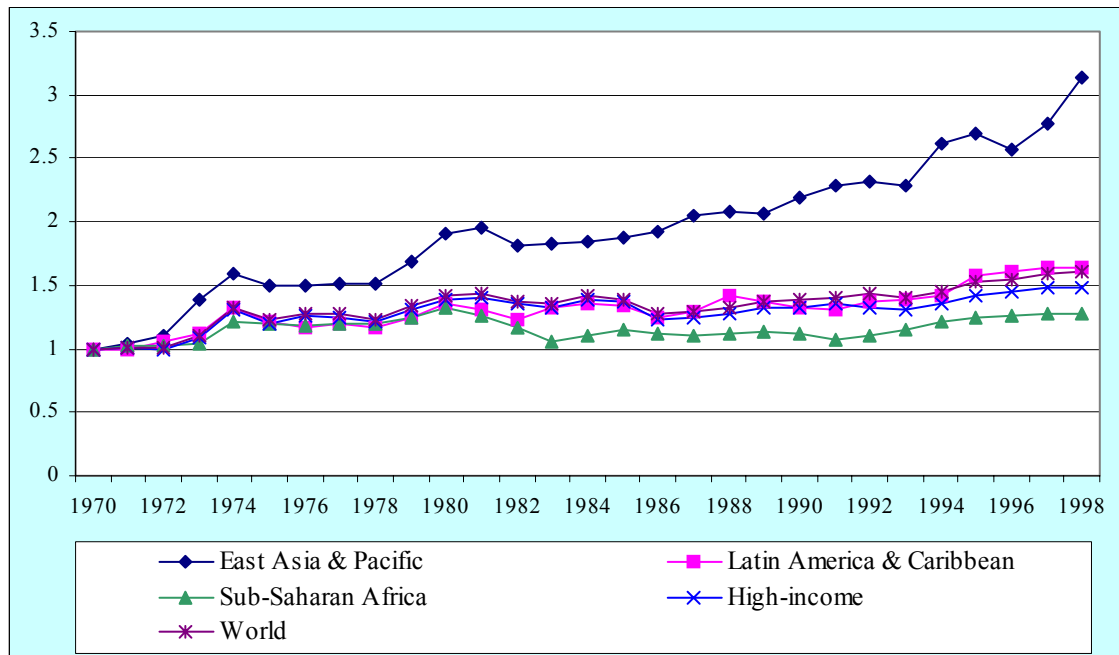
Apart from gains in allocative efficiency, increases in total factor productivity may also be generated by increased competition and the emergence of new forms of international trade. In principle, trade liberalization should increase competition in the domestic markets, acting as a complement to competition policy.<sup>5</sup> But this also depends on the contestability of the provision of services, otherwise the gains from liberalization may be captured by enterprises with market power in the distribution sector. In either case, more liberal trade policies tend to lower costs due to the elimination of x-inefficiencies (the elimination of dead-weight losses), and increase competitive pressures requiring new investments and technological advancement. For many observers, these sources of efficiency gains are dominant under current conditions of international trade and more important than the gains from static inter-sectoral shifts.<sup>6</sup>

There are several important qualifications to the assumption that freer trade necessarily produces the optimal results for development. For example, the endogenous growth literature generally presumes that openness favours growth at the world level, because new products and ideas become more easily available, and this turns into faster growth rates of productivity. However, as pointed out in Grossman and Helpman (1991), from a strictly theoretical viewpoint, the effects of removing trade restrictions on a particular economy are to be considered ambiguous. Results depend in particular on the initial level of development of the country considered and on its composition of factor endowments.<sup>7</sup> In fact, the comparative advantages and the specialization patterns of countries are not static, shifting with movements in technology and factor endowments at home and abroad. Moreover, such shifts are to some extent under the control of economic policy, since an appropriate policy environment may favour investments in sectors characterized by higher growth rates and bigger economic rents. In general, in defining optimal trade policies account needs to be taken of possible externalities associated with certain types of production (e.g. in high technology sectors), and other possible market failures (e.g. market power).

**A. Trade patterns**

World export values have grown constantly in the last 50 years, at an average annual rate of 10 per cent. At the end of the 1990s, the value of world total trade (at current prices) was about 50 times that in the 1950s. Trade has become more important for most economies relative to their GDP, as evidenced by the increased values of trade openness (figure 1).<sup>8</sup> Figure 1 shows that over time there is an upward trend in the trade/GDP ratio for the world as a whole and for all developing country groups. The fastest growth in openness has occurred in East Asia and Pacific, while the openness indicator of sub-Saharan Africa – which was the highest during the 1960s and the 1970s among developing country groups – shows a downturn in the 1980s, the time of the international debt crisis.

**Figure 1. Trade openness, by major country groupings**  
(Total trade as a percentage of GDP, base 1970 = 1)



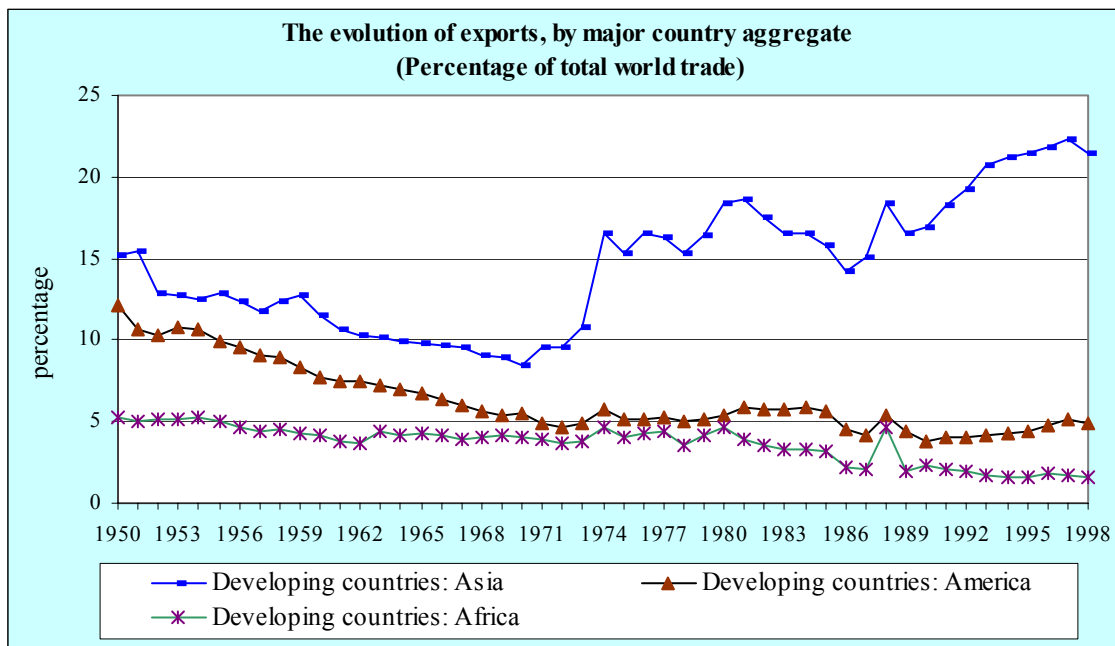
Source: UNCTAD computations based on World Bank, *World Development Indicators*, 2001.

Overall, the growth in world trade over the past two decades coincided with a greater role for developing countries both as exporters and importers. In the mid-1980s, the share of developing countries in world merchandise trade was less than 20 per cent. At the end of the 1990s that share reached almost 30 per cent.

However, not all developing countries followed this overall trend. As shown in figure 2, the increased share of developing countries' exports in world trade is mainly due to the trade performance of East Asian countries, while the share of African countries' exports in world exports declined from around 5 per cent in the 1950s to less than 2 per cent during

the 1990s. A similar downward trend is visible in the share of Latin American and Caribbean countries, whose share has almost halved compared with that in the early 1960s, despite a moderate recovery in the 1990s. A large part of this increased participation of developing countries in world trade is accounted for by the increase in trade among developing countries. In 1980 the share of exports from developing countries sold to markets of other developing countries was about 25 per cent; in 1999, this share was above 40 per cent.

**Figure 2. The evolution of various developing countries' exports**



Source: UNCTAD computations on UN COMTRADE data.

During the past decades, the sectoral structure of world trade changed significantly (table 1). In the 1960s and 1970s the share of manufactured products in developing countries' total exports remained remarkably small compared with that of developed countries (in 1980 this was less than 20 per cent for the former group and above 70 per cent for the latter). Starting in the 1980s, however, the share of manufactured exports from developing countries increased steadily, reaching values around 70 per cent at the end of the 1990s.

In terms of agricultural export shares, both developed and developing countries show a similar downward trend over time, and the gap between developing countries and the world average has been narrowing (figure 3).

Despite this overall trend, there are notable differences among agricultural sub-sectors. One relevant aspect of agricultural trade is the increasing importance of processed agricultural products in the total value of international trade, as opposed to trade in agricultural raw products. Food manufacturing (including beverages and tobacco), as well as the

**Table 1. The evolution of world export structure, by major country groups and products (1980-1997)**

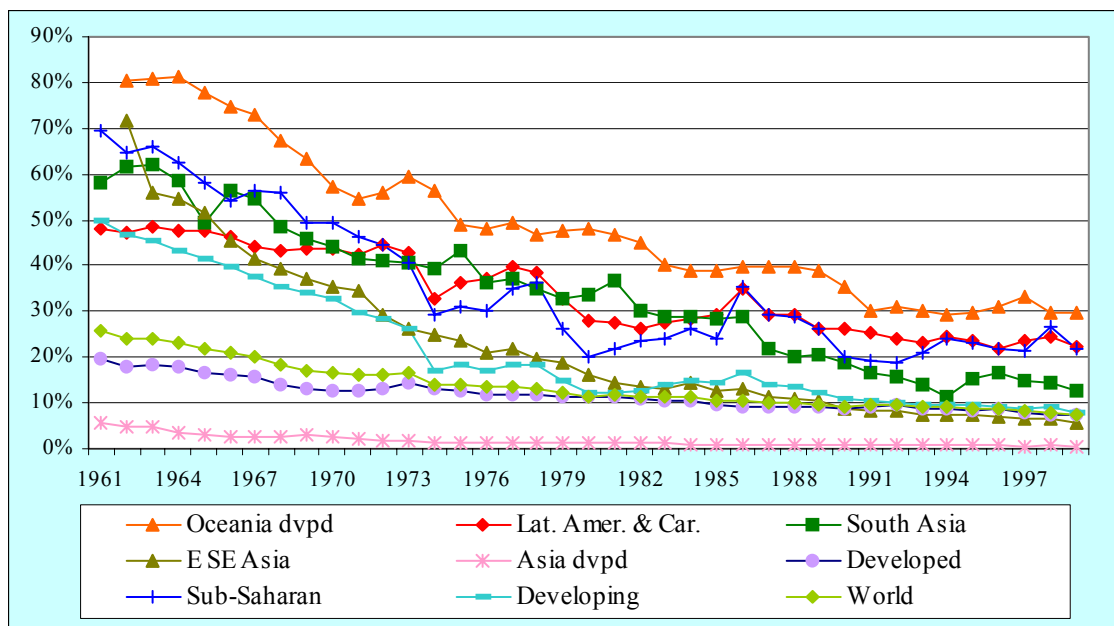
Exporter	Product groups	1980	1985	1990	1992	1993	1994	1995	1996	1997
Developed countries	Manufactures	70,9	73,5	78	78,7	78,5	79,2	78,8	79,1	79,7
	Food products	11,3	9,6	8,9	9,3	9,1	8,9	8,6	8,8	8,2
	Agricultural raw materials	3,6	3,1	2,8	2,5	2,4	2,6	2,6	2,3	2,2
Developing countries	Manufactures	19,5	35	53,6	60,5	63,5	65,5	66,5	66	67
	Food products	11,8	13,8	11,6	10,6	10,1	10,3	9,8	9,7	9,8
	Agricultural raw materials	3,8	3,3	3,1	2,9	2,7	2,9	3	2,8	2,6

Source: UNCTAD computations on UN COMTRADE statistics.

Food items comprise products in categories SITC sections 0 (food and live animals), 1 (beverages and tobacco), and 4 (animal and vegetable oils and fats), and SITC division 22 (oil seeds, oil nuts, and oil kernels). Agricultural raw materials contain products in SITC section 2 (crude materials except fuels) excluding divisions 22, 27 (crude fertilizers and minerals excluding coal, petroleum, and precious stones), and 28 (metalliferous ores and scrap).

agricultural sector in general, represents for many developing countries the most important manufacturing activity. The recent export growth of some developing countries is explained to a large extent by “new” processed goods that were not very important up until the 1970s.<sup>9</sup> On the other hand, shares of “traditional” items such as meat products, sugar and molasses, animal feeds, tobacco products and vegetable oils have either fallen or fluctuated over time.

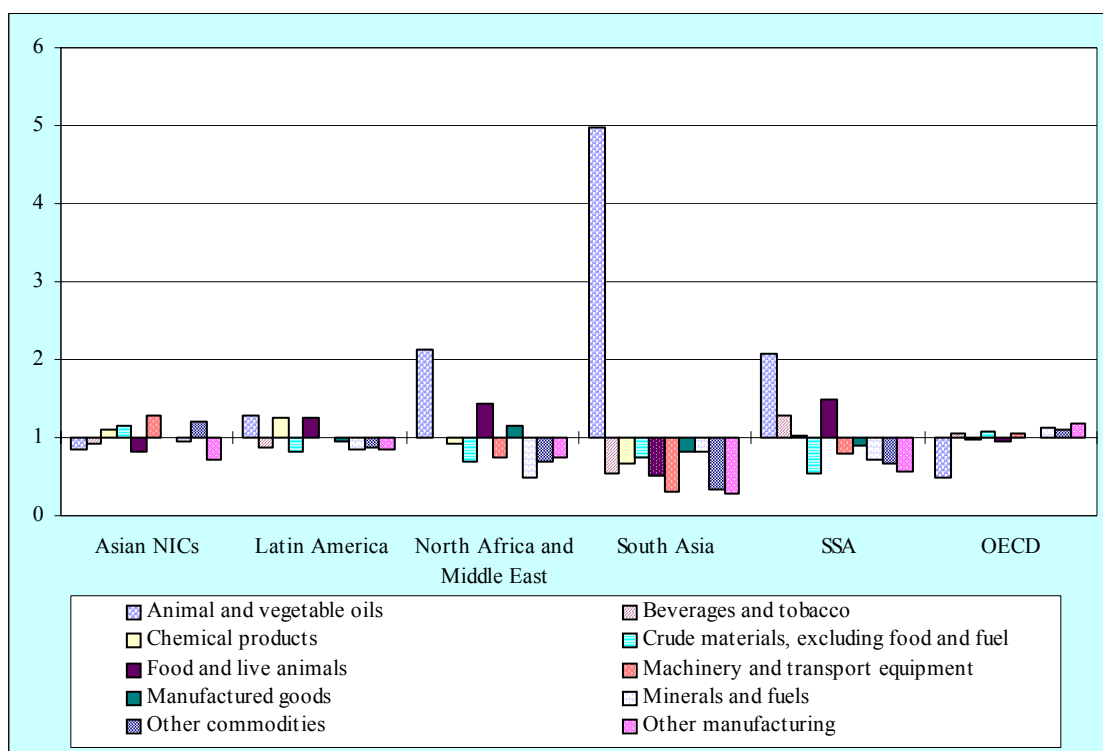
**Figure 3. The evolution of agricultural trade shares in total trade, by major country groupings**



Source: UNCTAD computations on UN COMTRADE data.



**Figure 4. RCA indexes, 1998-2000, by country groupings and sectors**



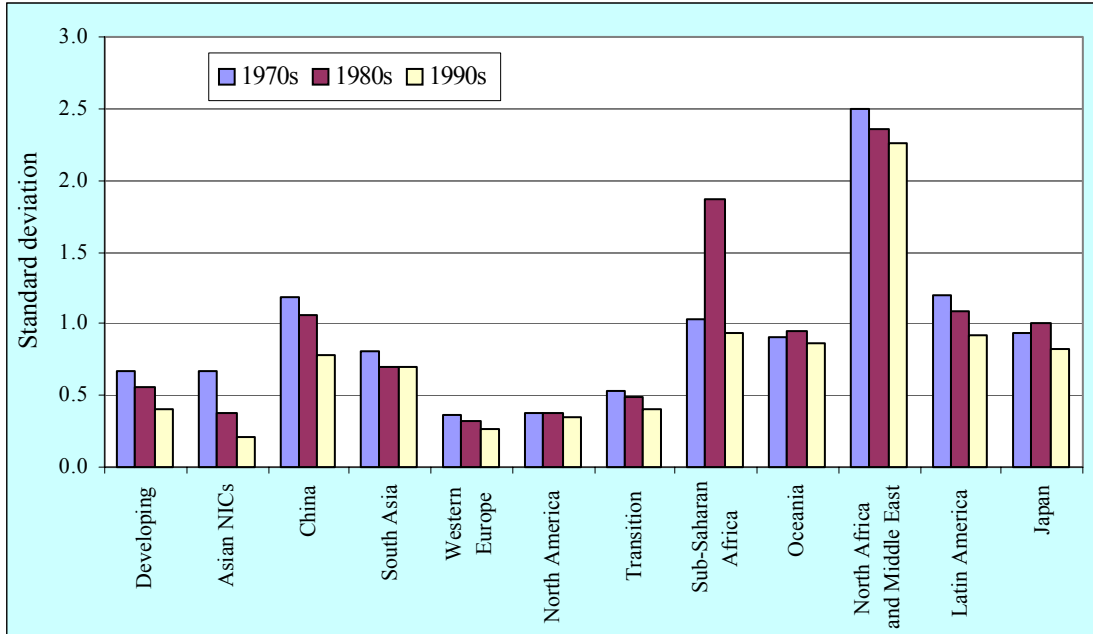
Source: UNCTAD computations on UN COMTRADE data.

The definition of the index is:  $RCA_{ij} = (X_{ij} / \sum_j X_{ij}) / ((\sum_i X_{ij} / \sum_j X_{ij}) / N)$ . This index takes values between 0 and 1. A value less than 1 characterizes sectors in which a country is relatively less specialized with respect to the world economy. On the other hand, a value of the index greater than 1 denotes sectors in which a country is relatively more specialized.

The world patterns of trade specialization can be described by plotting revealed comparative advantage indexes (RCAs) across sectors and regions (figure 4).<sup>10</sup> In agricultural products (animal and vegetable oils, food products, live animals) most developing country groups show RCA indexes higher than one (a notable exception being South Asia), while OECD countries appear to be less specialized in agriculture and have a sectoral pattern of exports more in line with that of the world average.

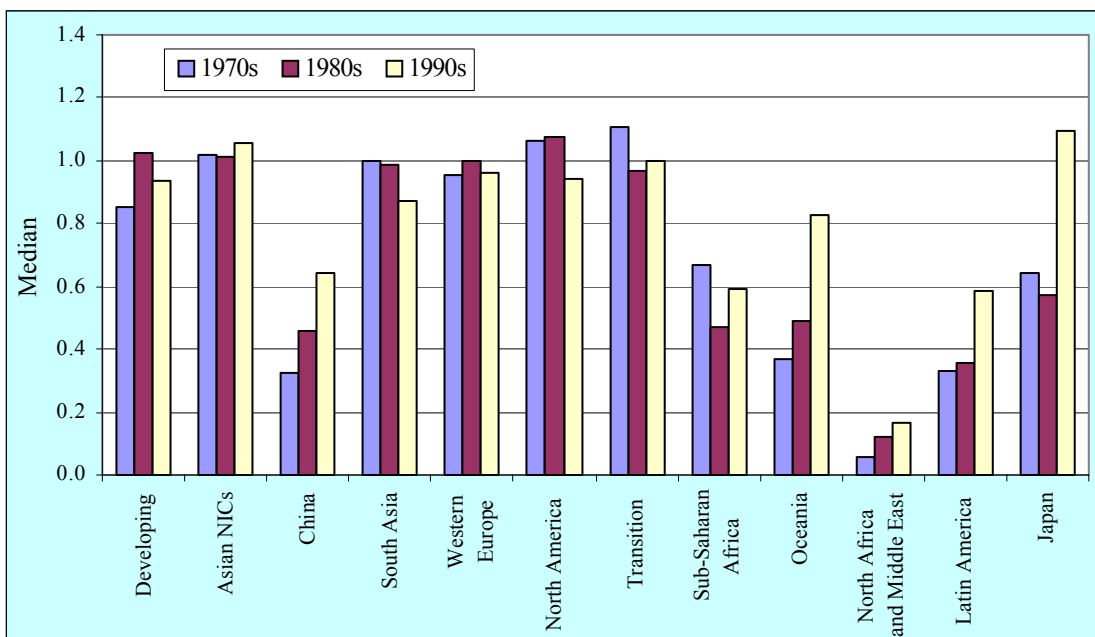
In figures 5 and 6, respectively, the standard deviation and the median of the RCAs of different world regions are compared for different decades. A greater value for the standard deviation of a given region suggests that RCA indexes are more dispersed across sectors.<sup>11</sup> Figure 5 shows a reduced dispersion in RCA values for most country groups, which suggests that the export structure in these regions has become more diversified and in line with that of the world average.<sup>12</sup> The results for sub-Saharan Africa in particular, Japan and Oceania are more ambivalent.

**Figure 5. Trade specialization: Standard deviation of RCA indexes, 1970s - 1990s**



Source: UNCTAD computations on UN COMTRADE data.

**Figure 6. Trade specialization: Evolution of RCA index median, 1970s - 1990s**



Source: UNCTAD computations on UN COMTRADE data.

Concerning the absolute values of RCAs, the RCA median has steadily increased over recent decades for Japan, Oceania, Latin America and China, which suggests that these regions have acquired a comparative advantage in an increasing number of sectors (figure 6). In the same period, for some regions (Western Europe and North America) the RCA median has been relatively high (around unity), whereas for some developing regions (Africa and Latin America) it has been quite low (below 0.6).

In summary, the evidence based on RCAs shows that developing countries rely on a narrower export base compared with that of industrialized countries and that this export base is to a large extent dependent on agricultural products. Moreover, while a number of Asian countries and few Latin American countries have been able to diversify their export base, the specialization pattern of African countries has been persistently narrow over time.

### **B. Practical lessons**

What has been the practical experience of developing countries with trade liberalization and development? Today, most economists accept that trade liberalization makes a positive contribution to economic growth (the single most important trade and development issue), at least in the medium to long term.<sup>13</sup> However, this relationship between openness and growth is essentially an empirical matter – as discussed earlier, economic theory provides no robust formal linkage. In the past decade there has been abundant empirical work aimed at assessing the effect of trade openness on economic growth.<sup>14</sup> Most of these papers find a positive cross-country relationship between trade openness and growth. The empirical debate on openness and growth, however, is not yet closed, since, as evidenced in Rodrik and Rodriguez (1999), a number of results that have been produced are not immune from criticism, mostly related to data limitations.

There is also recognition that the short-term effects of liberalization need not be positive. A recent survey reaches the conclusion that “inasmuch as openness to international trade (in low-income countries) and limited government intervention (everywhere) do not correlate with growth” (Mosley, 2000) it is necessary to widen the basic IMF prescription for growth, i.e. “openness toward international trade, macroeconomic stability and limited government intervention in the economy” so as to include measures aimed at correcting endogenous distortions in income distribution and in the capital market.<sup>15</sup>

Most of the observers that directed criticism at the “openness and growth” conventional wisdom do not deny that trade liberalization is beneficial in the long term, but they believe that the results also point up the importance of governance (see, for example, Rodrik, 2001).

There are several reasons for the lingering uncertainty about the beneficial effects of trade liberalization on economic growth, mainly because of uncertainties in the relevant data. It is difficult to obtain consistent, satisfactory time-series data on the use of trade barriers and other trade interventions. There are important divergences between MFN bound

**Table 2. Bound and applied tariffs on industrial products (simple averages)**

Import markets	End of implementation period <sup>a</sup>	Share of bound tariffs	Simple MFN average bound	Simple average applied	Year	Difference between bound and applied tariffs
<b>NORTH AMERICA</b>						
Canada	2000	99.6	5.2	4.8	1998	0.4
United States	2000	100	3.9	4.3	1999	-0.3
<b>LATIN AMERICA</b>						
Argentina	2005	100	31.0	13.7	1998	17.3
Chile	2005	100	25.0	10.9	1997	14.1
Colombia	2005	100	35.5	11.2	1998	24.3
Costa Rica	2005	100	44.6	6.4	1998	38.2
Mexico	2005	100	34.8	12.6	1998	22.2
Peru	2005	100	30.0	13.0	1998	17.0
<b>WESTERN EUROPE</b>						
European Communities <sup>b</sup>	2000	100	4.1	5.0	1998	-0.9
Norway	2000	100	3.4	3.3	1998	0.1
Turkey	2000	36.3	42.6	7.5	1996	35.1
<b>EASTERN EUROPE</b>						
Czech Republic	2000	100	4.3	4.8	1998	-0.5
Hungary	2000	95.4	7.4	9.0		-1.6
Romania	2000	100	30.1			
Slovakia	2000	100	4.3	4.9	1998	-0.6
<b>ASIA</b>						
Australia	2000	95.9	14.2	5.8	1998	8.4
Hong Kong (China)	2005	23.5	0	0	1998	0
India	2005	61.6	58.7			
Japan	2000	99.2	3.5	4.2	1998	-0.7
Republic of Korea	2005	90.4	11.7	7.9	1998	3.8
Macao (China)	2005	9.9	0	0		0
Philippines	2005	58.6	26.1	9.5	1998	16.6
Singapore	2005	65.5	4.6	0		4.6
<b>AFRICA</b>						
Cameroon	2005	0.1	17.6	17.6	1999	0
Chad	2005	0.4	17.6	17.6	1999	0
Gabon	2005	100	15.5	17.6	1999	-2.1
Senegal	2005	32.3	13.8			
South Africa	2005	98.1	17.7			
Tunisia	2005	46.3	34.0			
Zimbabwe	2005	8.8	11.3			

Source: Bacchetta and Bora (2001).

<sup>a</sup> Members may have scheduled longer implementation periods for a certain number of tariff lines. One example is textiles and clothing products, where several WTO Members have until 2004 to implement their tariff reductions.

<sup>b</sup> EC 12 for bound duties; EC 15 for applied duties.

and applied rates (table 2). MFN tariffs often coexist with regional or other preference schemes and complex rules of origin. Even tariffs are sometimes applied as specific or mixed rates or tariff rate quotas, whose *ad valorem* or percentage equivalents can be difficult to estimate. Tariff duties are sometimes waived under a variety of national schemes. Non-tariff barriers (NTBs) are inherently complex, they have multiple effects and their incidence varies across time and across trade partners (Laird, 1996). Their use has certainly been declining, but they remain particularly important in agriculture, textiles and clothing and services. The measurement problem is compounded when NTBs and tariffs are used in conjunction (“stacking”).

In addition, there have been complex and interlinked policy changes over the last 10-15 years. Tariffs have certainly declined, as have tariff revenues (Drabek and Laird, 1998). The rationalization and simplification of tariff regimes have often gone together with reduction in the use of NTBs (see table 3 on OECD countries).<sup>16</sup> These changes in the use of trade instruments have often also been accompanied by institutional changes, participation in regional agreements and increasing commitments under the WTO. On the whole, there has been a consistent pattern of liberalization, greater openness, considerable deregulation and improved governance. There have been some, but relatively few, instances of rolling back these reforms in recent crises.

In essence, openness and governance have gone hand in hand and it is difficult to separate the relative importance of these trends. Moreover, it is to be expected that the initial shift from a highly protected regime or closed economy would have a greater impact than liberalizing from an existing moderate trade regime.

Thus, while the longer-term benefits of liberalization may be less in dispute than in the past, there are significant short-term risks and no clear-cut formula that guarantees the avoidance of such risks. Faster-moving reforms may have higher risks but bring faster benefits. More measured reforms lessen the risks but take longer to produce the benefits. In any event, the risk of adverse social consequences may need to be addressed by social safety nets, retraining and structural adjustment programmes to facilitate change and minimize social disruption.

Table 3. Import coverage of major NTBs in OECD countries

(A) 1989	Australia	EU	Iceland	Japan	New Zealand	Norway	Mexico	Turkey	Switzerland	USA
All NTBs	3.4	26.6	n.a.	13.1	14.1	26.6	2.0	0.1	12.9	25.5
Core NTBs	3.4	25.2	n.a.	12.5	14.1	25.2	2.0	0.0	3.3	25.5
Quantitative restrictions (QRs)	0.5	19.5	n.a.	11.7	13.9	19.5	1.9	0.0	1.7	20.4
Export restraints	0.0	15.5	n.a.	0.3	0.0	15.5	0.0	0.0	0.0	19.5
Non-auto licensing	0.5	4.4	n.a.	8.9	0.0	4.3	1.8	0.0	0.4	0.0
Other QRs	0.0	0.2	n.a.	2.8	13.9	0.2	0.2	0.0	1.4	6.6
Price controls (PCMs)	2.9	12.4	n.a.	0.8	0.3	12.4	0.1	0.0	1.6	17.8
Variable levies	0.0	6.3	n.a.	0.8	0.0	6.3	0.0	0.0	1.5	0.1
AD/CVs & Voluntary export price restraints (VEPRs)	2.9	2.6	n.a.	0.0	0.3	2.6	0.1	0.0	0.0	17.8
Other PCMs	0.0	4.3	n.a.	0.0	0.0	4.3	0.0	0.0	0.1	0.0
(B) 1996	Australia	EU	Iceland	Japan	New Zealand	Norway	Mexico	Turkey	Switzerland	USA
All NTBs	0.7	19.1	3.6	10.7	0.8	4.3	14.1	0.4	7.6	16.8
Core NTBs	0.7	15.1	1.5	10.0	0.8	2.6	14.1	0.4	0.2	16.7
Quantitative restrictions (QRs)	0.0	13.1	1.5	9.2	0.0	2.6	1.0	0.2	0.2	10.9
Export restraints	0.0	11.4	0.0	0.0	0.0	1.2	0.0	0.0	0.0	10.8
Non-auto licensing	0.0	1.5	1.4	8.6	0.0	2.6	1.0	0.2	0.0	0.0
Other QRs	0.0	0.2	0.1	0.6	0.0	0.0	0.0	0.0	0.2	0.6
Price controls (PCMs)	0.7	3.2	0.0	0.7	0.8	0.0	13.1	0.3	0.0	7.6
Variable levies	0.0	1.4	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.1
AD/CVs & VEPRs	0.4	0.9	0.0	0.0	0.8	0.0	13.1	0.3	0.0	7.6
Other PCMs	0.3	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1

Source: OECD (1997).

Notes: "Core" NTBs are QRs and PCMs shown in the table, imposed "with the specific intent of modifying or restricting international trade" (OECD, 1997).

Non-core NTBs include automatic licensing and monitoring measures. See OECD (1997) for further details of methodology.

**Notes:**

- <sup>1</sup> For a discussion, see for instance Drabek and Laird (2001) and Rodriguez and Rodrik (1999).
- <sup>2</sup> Static models can yield answers concerning the effects of trade policy on the level of output, but not on the growth rate. Conversely, in standard diminishing returns to scale growth models trade policy can affect output growth only transitionally, without affecting the long-run growth path.
- <sup>3</sup> A country's national savings-investment imbalance is identical to the difference between exports and imports of goods and services.
- <sup>4</sup> These countries have had to rely heavily on ODA financing – see Report of the Secretary-General to the Preparatory Committee for the International Conference on Financing for Development, United Nations (A/AC.257/12 of January 2001).
- <sup>5</sup> For more discussion see Graham (2001). Graham notes: “Current thinking has evolved away from seeing gains from either trade liberalization or from moving from less to more effective competition within markets as ‘one-shot’ (i.e., static) in nature. The changed thinking is based on the recognition that the main driver of efficiency gains in the medium and long run is not the reallocation of resources in a static sense but rather the enhancement of total factor productivity.”
- <sup>6</sup> Smith (2000), for example, stresses that skill differentials within countries are the critical determinant of trade flows. He argues that there is no longer much room for traditional trade policy which primarily targets intersectoral resource allocations.
- <sup>7</sup> Grossman and Helpman (1991) and Matsuyama (1992) provide examples of economies that by opening up to trade experience a reduction in long-run growth associated with an increased specialization in “traditional” sectors lacking the scale economies (static or dynamic) that are key to growth.
- <sup>8</sup> The ratio of exports plus imports to gross national product is a widely used indicator of openness in international trade. Some caveats are to be mentioned concerning the interpretation of this indicator. First, it does not account for differences (across time or countries) in the ratio between tradable and non-tradable output. Second, in cross-country comparisons, it is subject to the influence of a number of factors, above all country size.
- <sup>9</sup> The most prominent of these fast-growing food exports is processed fish, whose share in total processed food exports from developing countries increased from 6.7 per cent in 1970 to 28.4 per cent in 1994. There has also been an increase in the share of preserved fruit in processed food over time, though not as spectacular as in the case of processed fish.
- <sup>10</sup> The revealed comparative advantage index of country *b* in sector *i* is obtained as the ratio of the share of export of sector *i* over total export of country *b* over the same share computed for the whole world. A value above (below) unity indicates that country *b* is more (less) specialized than

its average trade partner in the production of good  $i$ .

- <sup>11</sup> Since one of the properties of the normalized RCA index is that its average across sectors is equal to one, it follows implicitly that higher values for standard deviation reflect higher values of specialization in fewer sectors.
- <sup>12</sup> Similar conclusions are drawn by a number of authors analysing the trade pattern of different countries and sectoral aggregations. See for instance Balassa (1977), Amendola, Guerrieri and Padoan (1992), and Proudman and Redding (1998a, b).
- <sup>13</sup> See, for example, Sachs and Warner (1995).
- <sup>14</sup> See, e.g., Dollar (1992), Sachs and Warner (1995), Edwards (1992, 1998), Ben-David (1993).
- <sup>15</sup> It may be noted that in the 1990s Chile adopted more socially oriented spending programmes in health and education without any slackening of the real growth rate of some 9 per cent a year (up to the Brazilian crisis of 1998). WTO (1997).
- <sup>16</sup> A similar pattern of reduced use of NTBs by developing countries in this period has been shown by Michalopoulos (1999), although directly comparable data are not available.



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### ***III. THE DEVELOPING COUNTRIES IN THE GATT/WTO SYSTEM***

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Participation in the WTO has been a mixed experience for the developing countries, providing a number of important benefits as well as challenges. On the one hand, it provides for improved and more secure access to third country markets, and through the dispute settlement mechanism, the means to enforce acquired rights. On the other hand, it entails taking on an increasing level of obligations, including market opening and the application of WTO rules. To some extent, therefore, participation in the WTO may be seen as promoting liberalization and governance, but it also limits the policy options of which developing countries have been able to avail themselves in the past. This trend may be expected to accelerate under the WTO work programme, as extended at Doha.

The question of the relationship of the developing countries with the WTO system has been at the centre of a serious debate since the failed WTO Third Ministerial Meeting in Seattle in 1999. While there were many points of disagreement in Seattle, development-related issues were central, and have dominated the debate in the WTO in the last two years, culminating in attempts to make development central to the WTO agenda in the post-Doha period.

To some extent, this emphasis on development is long overdue – it is in effect a hangover from the post-war failure to establish the International Trade Organization (ITO), which had chapters on employment and economic activity, economic development and reconstruction, restrictive business practices and intergovernmental commodity agreements.

Thus, the Uruguay Round, while recognizing the importance of development in its preamble, represents – most markedly through the Single Undertaking – a step towards a single tier system of rights and obligations. Under this view, special and differential (S&D) treatment is not a permanent recognition of the needs of the developing countries, but a set of transitional measures to bring developing countries progressively to the same level of obligations as the developed countries. As such, S&D provisions have in effect triggered a debate on the special problems and barriers that developing countries face as they seek their fuller integration into the world economy.

Since the end of the Uruguay Round, developing countries have expressed considerable concern about the implementation of the Uruguay Round Agreements. For example, towards the end of the Uruguay Round, there were estimates by several international organizations, including GATT, that the Round would yield global welfare gains of between \$212 billion and \$510 billion, while the estimated gains for developing countries ranged between \$86 billion and \$122 billion.<sup>1</sup> Mostly, these gains were largely proportional to each country's own liberalization efforts, and, although many developing countries had extended tariff bindings and lowered bound MFN tariffs, their applied rates were mostly lower than the new, bound levels, so that little tariff liberalization took place in practice. On the other hand, this question assumed great importance in relation to the backloading of liberalization in the textiles and clothing sector, where the main gains have yet to be realized. While the integration of textiles and clothing into the GATT 1994 was proceeding as scheduled and other commitments were being implemented in agriculture and manufactures, some of the expected gains were offset by the use of anti-dumping, special safeguards, the use of specific tariffs, tariff peaks, tariff escalation and tariffs quotas, and so on. Developing countries began to appreciate that the “best endeavour” clauses had no legal value and could not be enforced.

#### **A. Market access: the post-Uruguay Round environment**

Although Doha brought a number of “new” issues onto the WTO agenda (investment, competition, etc.), market access remains one of the most important trading issues between the developing and developed countries. While negotiations on reducing trade barriers and support measures in agriculture were part of the “built-in agenda” established during the Uruguay Round and have been progressing towards a more GATT 1994 compliant environment, market access in industrial products was added to the negotiating agenda in Doha. WTO members acknowledged the importance of enhanced market access for industrial products of interest to developing countries and agreed to start negotiations on the reduction or elimination of tariff peaks, high tariffs and tariff escalation, as well as non-tariff barriers on all industrial products. “Tariff peaks” and “high tariffs” are not defined in the WTO. Following OECD (1997), a practice has developed of referring to tariff peaks as rates that are more than three times the national average. In order to ensure that developing countries and least developed countries benefit the most from these negotiations, it was agreed that appropriate studies and capacity-building measures should be undertaken to help least developed countries to participate effectively in the negotiations.

It is widely agreed among trade economists that a relatively uniform tariff structure is preferable to one exhibiting considerable dispersion. At least two reasons are advanced to justify a flat tariff structure. Firstly, the costs in terms of welfare and economic inefficiency of a tariff regime increase as the degree of dispersion increases. Tariff peaks increase the economic inefficiency stemming from protection, as it hampers the exploitation of increasing returns to scale across different markets, while reducing competition and specialization according to comparative advantage.

Secondly, the case for a uniform tariff structure receives strong support from political economy arguments since uniform tariff rates are more transparent and easier to administer than non-uniform tariffs, and are less likely to be determined by the relative political power of domestic industries. Under these circumstances it goes almost without saying that finding a formula to reduce tariff peaks is highly desirable.<sup>2</sup>

After the conclusion of the Uruguay Round, the developing countries' strongest demands in terms of market access in developed countries were less targeted against overall applied most-favoured-nation (MFN) tariffs on industrial products (which in developed countries have declined below an average of 3 per cent (Francois (2000a)), but, more importantly, for the reduction of distortions affecting trade in agriculture and other specific products of interest for developing countries that are still subject to tariff peaks and tariff escalation in many developed countries.<sup>3</sup> However, given the increasing share of trade between developing countries, gaining access to each other's market represents another factor of interest for developing countries.

The following sections try to identify the issues that are relevant for developing countries in the next round of negotiations on market access in both agricultural and industrial goods. After a brief description of the protection pattern facing developing countries, sectors and products affected by tariff peaks and tariff escalation are identified.

### **1. Tariff peaks in agriculture**

As a result of Uruguay Round commitments, all non-tariff measures in agriculture were to be transformed into tariff equivalents (tariffication) and all existing and newly established tariffs had to be reduced according to specific schedules.<sup>4</sup> Starting in 1995, ordinary tariffs and those resulting from tariffication had to be reduced during a six-year period (10 years for developing countries) by 36 per cent (24 per cent by developing countries), calculated as a simple average across all agricultural tariff lines. Furthermore, the minimum tariff reduction for each tariff line (with some exceptions) was 15 per cent for developed and 10 per cent for developing countries.

Besides market access concessions in the strict sense, the Uruguay Round also resulted in commitments in other key areas concerning agricultural trade: domestic support and export subsidies.<sup>5</sup> Apart from the relatively high applied tariffs, what characterizes protection in agricultural products is the greater importance of technical barriers to trade aris-

ing from the prevalence of different sanitary and phytosanitary standards. In addition, processed food is also affected by labelling and packaging requirements, etc. While tariffs are on a downward trend, even though slowly, the potential of technical barriers to trade to negatively affect developing country exports is increasing.<sup>6</sup>

A way of analysing simultaneously the variations in agricultural protection across different markets and the differential effect on exports is provided in tables 4 and 5. Overall, developed countries apply rates that are lower than those applied by most developing countries. However, in processed agriculture, several developing regions (Latin America, China, Asian newly industrializing countries (NICs), sub-Saharan Africa) are less protected than Western Europe or Japan.

The degree to which applied tariff peaks affect various agricultural products can be assessed by examining the data presented in table 6. The highest tariff dispersion was found in tobacco products, milk concentrates and butter. The highest standard deviation products are also the ones where the highest maximum tariffs are found (between 300 and 350 per cent).<sup>7</sup> In terms of frequency of tariff peaks across agricultural products (expressed as the percentage of lines affected by tariff peaks in the total number of lines) the sectors most affected by domestic tariff peaks are beef (more than 52 per cent) and chocolate (more than 32 per cent). The highest frequency of international tariff peaks is also found in beef, followed by dairy products (milk and butter).

Very high weighted MFN tariffs are applied to butter and tobacco products, two products that also have record maximum MFN tariffs. Other products with high tariffs have a lower weighted average, probably as a result of the large value of trade in items that have zero or very low *ad valorem* rates. In addition, there are many items covered by specific rates for which information is not available on the *ad valorem* or percentage incidence; this would also tend to give a downward bias to the results. Many of these are agricultural raw materials or agricultural products with a low level of processing, while average tariffs on processed agricultural products are systematically higher. Tariff escalation by processing stage in agriculture and manufactures is discussed in section III.

## **2. Tariff peaks in manufactures**

As mentioned in section II, most economists have considered trade to be a powerful engine for development, especially when developing countries are able to shift from resource-based products into more technology-intensive exports. Moreover, as we have seen, economies that have been able to diversify have been able to hold on to or even increase their share in world trade, while commodity-dependent exporters have suffered a decline in their share in trade. For these reasons, market access to high-tech products, as well as more processed goods, becomes an important aspect for developing countries.

**Table 4. Average protection applied by different importing regions (percentage)**

Sectors	Asian NICs	China	South Asia	Western Europe	North America	Transition economies	Sub-Saharan Africa	Oceania	North Africa and Middle East	Latin America	Japan	Rest of the world
Natural resources	2.3	1.9	14.1	0.0	0.2	1.3	4.9	0.0	4.0	4.9	0.0	4.5
Primary agriculture	37.7	15.5	20.6	12.1	8.5	12.6	16.3	1.7	48.7	12.4	30.0	6.3
Processed agriculture	20.2	15.4	29.4	20.9	10.0	19.7	26.9	4.6	57.8	16.5	46.0	12.5
Textiles and apparel	8.0	12.9	27.5	5.1	10.3	13.5	20.5	15.5	13.4	14.7	6.0	14.2
Manufactures	4.8	6.1	23.8	1.9	1.3	8.8	10.9	3.2	8.0	10.7	0.3	9.2
Services	0.0	0.0	0.0	0.0	0.0	1.0	1.8	0.0	0.2	0.7	0.0	0.0

*Source:* UNCTAD elaborations on GTAP 5 and UNCTAD TRAINS databases.

*Note:* Rates include MFN and preferential tariffs, as well as estimates of non-tariff protection (GTAP source). GTAP5 data are referred to 1997. Aggregations from GTAP categories are described in tables 22 and 23.

**Table 5. Average protection faced by exporters of different regions (percentage)**

Sectors	Asian NICs	China	South Asia	Western Europe	North America	Transition economies	Sub-Saharan Africa	Oceania	North Africa and Middle East	Latin America	Japan	Rest of the world
Natural resources	3.9	3.1	3.7	4.0	2.6	2.4	4.0	2.9	3.1	2.3	2.5	3.2
Primary agriculture	14.8	23.8	18.0	15.1	23.4	12.2	16.9	24.1	19.5	21.0	16.0	17.6
Processed agriculture	20.6	24.5	14.0	27.4	25.0	21.1	14.8	35.0	19.4	20.6	27.8	28.6
Textiles and apparel	15.7	17.7	12.7	14.0	14.1	13.7	10.6	9.0	13.8	9.3	14.3	16.8
Manufactures	8.1	8.9	6.7	7.8	6.2	6.9	6.5	7.1	7.8	6.2	10.2	6.8
Services	0.4	0.3	0.3	0.3	0.3	0.4	0.2	0.3	0.3	0.3	0.3	0.3

*Source:* UNCTAD elaborations on GTAP 5 and UNCTAD TRAINS databases.

*Note:* Rates include MFN and preferential tariffs, as well as estimates of non-tariff protection (GTAP source). GTAP5 data are referred to 1997. Aggregations from GTAP categories are described in tables 22 and 23.

**Table 6. MFN tariff peaks in developed markets on agricultural imports from developing countries (1998-1999)**

Product	Standard deviation	MFN weighted average tariff	Maximum MFN tariff	Domestic peaks (percentage)	International peaks (percentage)
Beef	16.16	12.89	41.35	52.11	29.58
Sheep meat	9.02	0.84	21.25	3.45	3.45
Poultry	33.33	8.16	134.30	2.52	2.52
Milk	56.33	22.70	140.00	17.78	17.78
Milk concentrates	105.02	19.59	308.50	22.15	22.15
Butter	100.54	249.97	336.25	32.47	19.48
Barley	41.73	22.12	101.50	11.43	11.43
Maize	13.19	3.99	50.00	4.00	4.00
Wheat	28.93	39.51	81.50	13.11	9.84
Banana	9.07	4.27	27.95	22.73	13.64
Citrus fruits	7.10	4.62	25.65	6.10	8.54
Other tropical fruits	8.57	10.68	33.25	14.86	8.11
Non-tropical fruits	5.60	0.77	17.75	1.45	2.90
Chocolate	40.55	22.72	276.50	34.21	14.33
Tobacco	97.97	44.86	350.00	6.25	6.25
Cigarettes	10.78	2.67	30.00	4.17	4.17
Cigars	6.95	10.14	17.00	0.00	10.00
Other tobacco product	115.49	168.57	350.00	16.46	17.72
Tea	5.96	3.82	17.75	11.11	11.11
Oil seeds	24.84	9.56	171.00	1.02	1.02
Vegetable oils	4.99	1.40	19.95	3.74	1.15

*Source:* UNCTAD elaborations on UNCTAD TRAINS data.

*Note:* Table 6 is based on applied MFN rates.

Industrial products have been on the multilateral agenda from the very beginning of the GATT and therefore the successive rounds of negotiations reduced the overall tariffs much more than in other sectors. After the successive tariff cuts during the various GATT rounds, average MFN tariffs on manufactures are quite low, while applied rates have fallen even lower under unilateral reforms. Despite these advances in market access in industrial products, there remain a number of issues that are still worth investigating. As shown in table 7, beyond these averages, tariff rates remain dispersed as measures by standard deviation and the spread of minimum and maximum rates.

Apart from this dispersion of rates, there are a number of very high rates – “tariff peaks”.<sup>8</sup> When looking at the percentage of domestic peaks, among developed markets North America counts more than Western Europe or Japan, while Latin America has the highest value among developing country groups.<sup>9</sup> Gauging the impact of tariff peaks only by looking at domestic tariff peaks would be misleading since the indicator is biased against countries that have a higher number of duty-free lines, for instance. To obtain a better understanding one should also look at the number of international peaks that compares each tariff line with a 15 per cent benchmark. This indicator, which is better suited for

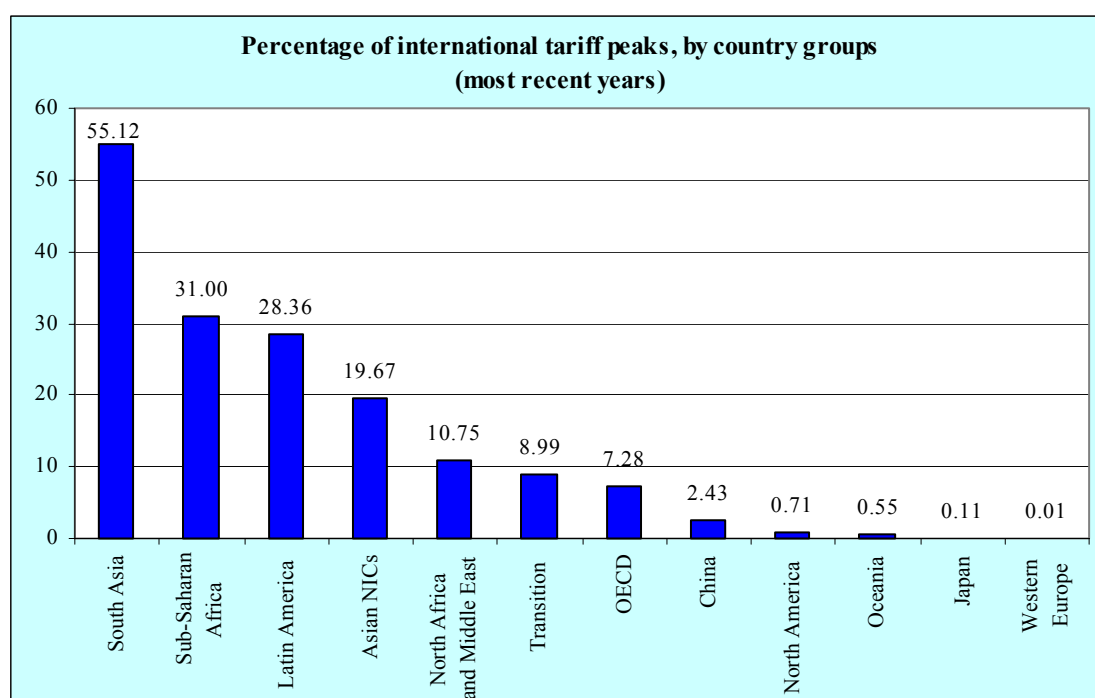
**Table 7. MFN tariff peaks on manufactured exports from developing countries (Most recent years available in WITS/TRAINS)**

Reporter	Standard deviation	Weighted average	Maximum rate	Domestic peaks (percentage)	International peaks (percentage)
Developing	8.42	8.61	225.00	3.05	22.51
Asian NICs	10.20	6.75	200.00	0.95	19.67
China	5.06	3.27	50.00	0.63	2.43
South Asia	12.57	19.44	200.00	0.81	55.12
Western Europe	1.10	0.16	21.20	1.02	0.01
North America	3.35	1.54	110.00	30.15	0.71
Transition	5.54	7.15	90.00	0.08	8.99
Sub-Saharan Africa	11.21	8.62	225.00	3.21	31.00
Oceania	3.45	3.53	28.00	4.28	0.55
North Africa and Middle East	5.26	8.06	55.00	0.46	10.75
Latin America	7.17	11.60	100.00	4.70	28.36
Japan	1.75	0.83	21.90	0.09	0.11
OECD	6.05	2.16	110.00	9.35	7.28

Source: UNCTAD elaborations on UNCTAD TRAINS data.

Notes: See Table 4 for a definition of manufactures. Table 7 is based on applied MFN rates.

cross-country comparisons, shows that international tariff peaks are more frequent in developing than in developed countries (figure 7).<sup>10</sup>

**Figure 7. The incidence of international tariff peaks**

Source: UNCTAD computations on the UNCTAD TRAINS database.

International tariff peaks include applied tariffs that are above 15 per cent.

**Table 8. Quad markets: MFN tariff peaks in manufactures, by technology-based product groups, 2000**

Product group		Canada	EU	Japan	United States
Low technology, textile/fashion cluster	Standard deviation	7.67	3.60	6.61	7.44
	Domestic peaks (as a share of total number of lines)	0.75	0.00	0.08	0.87
	International peaks (as a share of total number of lines)	0.40	0.02	0.09	0.15
	Maximum rate	22.50	17.00	37.50	48.00
Low technology manufactures, n.e.s.	Standard deviation	3.60	2.14	1.85	4.03
	Domestic peaks (as a share of total number of lines)	0.66	0.00	0.00	0.67
	International peaks (as a share of total number of lines)	0.01	0.00	0.00	0.02
	Maximum rate	18.00	12.00	17.00	38.00
Medium technology, automotive products	Standard deviation	3.12	5.85	0.00	5.25
	Domestic peaks (as a share of total number of lines)	n.a	0.00	0.00	0.56
	International peaks (as a share of total number of lines)	n.a	0.16	0.00	0.04
	Maximum rate	13.00	22.00	0.00	25.00
Medium technology, process industries	Standard deviation	5.27	3.41	3.70	4.58
	Domestic peaks (as a share of total number of lines)	0.59	0.00	0.00	0.74
	International peaks (as a share of total number of lines)	0.12	0.00	0.00	0.07
	Maximum rate	20.50	12.00	27.20	23.10
Medium technology, Engineering industries	Standard deviation	3.77	2.03	1.17	2.14
	Domestic peaks (as a share of total number of lines)	0.37	0.00	0.00	0.38
	International peaks (as a share of total number of lines)	0.01	0.00	0.00	0.00
	Maximum rate	25.00	14.00	8.40	14.00
High technology, electronic/electrical products	Standard deviation	2.87	3.37	0.42	2.22
	Domestic peaks (as a share of total number of lines)	0.36	0.00	0.00	0.48
	International peaks (as a share of total number of lines)	0.00	0.00	0.00	0.00
	Maximum rate	9.50	14.00	3.30	15.00
High technology, n.e.s	Standard deviation	2.35	1.75	0.28	2.20
	Domestic peaks (as a share of total number of lines)	0.27	0.00	0.00	0.38
	International peaks (as a share of total number of lines)	0.00	0.00	0.00	0.00
	Maximum rate	11.00	7.70	3.90	16.00

Source: UNCTAD elaborations on UNCTAD TRAINS data.



Table 8 shows the incidence of tariff peaks in Quad markets on developing country exports, by technology-based product categories. An examination of particular manufactured commodities reveals the same pattern and sheds more light on the actual industrial sectors that are most affected by tariff peaks. Thus, the highest tariff dispersion is found, in order, in textiles (Canada, Japan, United States), automotive (European Union), and process industries. In terms of domestic peaks, the most affected industrial sectors were textiles, other manufactures, and process industries in the United States and Canada.

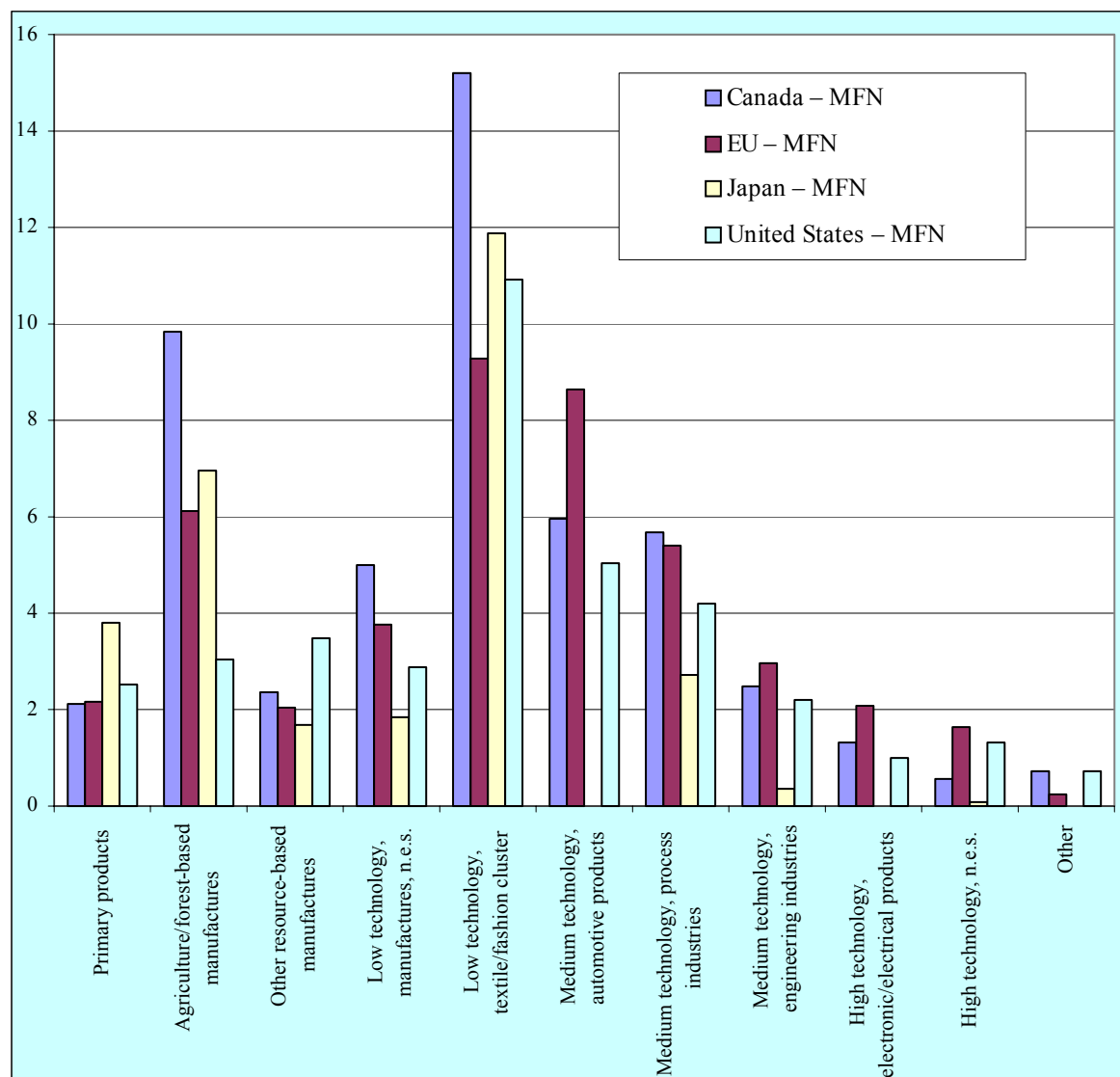
To understand the extent to which the structure of world protection may hamper the possibility for developing countries to follow an export-driven shift from traditional commodities to high-value added products one may look at market access opportunities offered by developed countries to developing countries in different technology-differentiated products. Figure 8 shows that, overall, protection in Quad markets is quite clearly concentrated in typical export categories of interest to low- and middle-income developing countries, such as textiles and agriculture. Therefore, developing countries that are mainly specialized in raw materials and primary agricultural products are faced with higher trade barriers when trying to move into the subsequent production stages (low technology sectors such as processed agriculture and textiles, or medium technologies such as automotive). In contrast, more advanced developing countries seem to find fewer obstacles to developing an export capacity in medium- and high-technology sectors such as electronic products. Moreover, considerable obstacles to an export-led sectoral transition from raw commodities to high-value-added products might come from the high protection levels applied by developing countries themselves. Generally, protection in developing countries (measured either as average and maximum rates) is higher than in developed markets, especially in medium-/high-technology manufactures.

In summary, the data show that although average tariff rates in developed countries have been reduced to low levels, the importance of tariff peaks on products of interest to developing countries remains a matter of some concern. From this perspective, a precondition for the success of multilateral negotiations to increase market access is to reduce trade barriers in a mutually advantageous manner. For most developing countries, this means reducing tariff peaks on products that are of major export interest to them.

### **3. Tariff escalation**

Another area that did not follow the low post-UR average tariffs is related to the structure of tariffs that still exhibits some degree of tariff escalation. The practice of tariff escalation biases exports towards unprocessed resource-based commodities, characterized by low value-added. This may cause difficulties to commodity-dependent developing countries in their attempt to diversify their export base. Although these claims have been well evidenced and long voiced, the extent of tariff escalation remains significant.

**Figure 8. Weighted MFN tariffs applied by Quad countries on technology-differentiated exports from developing countries, 2000**



Source: UNCTAD computations on UN COMTRADE data.

For a definition of the technology-differentiated product groups, see Lall (2000). Tariffs in agriculture include only applied *ad valorem* tariffs. For lines affected by TRQs, both in- and out-quota tariffs have been weighted by the actual trade flows.

An issue to be resolved in order to identify the extent to which tariff escalation is present concerns the identification of different production chains and how different products can be classified as raw, semi-finished or finished. In the subsequent analysis, products have been classified in the above-mentioned categories using the Standard International Trade Classification. Although there are inherent difficulties in assigning products according to their SITC descriptions, a number of important commodities have been categorized according to primary, intermediate and processed stages in production chains.

**Table 9. Tariff escalation in Quad countries, by major product group  
(weighted average MFN applied tariffs in percentage, most recent years  
available in TRAINS)**

MFN tariff escalation Product group	Canada			Japan			United States			European Union		
	R	S	F	R	S	F	R	S	F	R	S	F
Meat products	0.11	10.25	18.83	0.08	12.92	10.66	0.60	6.15	3.38	1.53	5.16	12.95
Dairy and egg products	1.94	..	9.00	18.77	..	17.39	2.82	..	11.56	6.27	..	7.70
Fish products	0.01	1.53	0.01	3.91	5.10	11.58	0.15	1.88	1.96	9.34	14.64	13.31
Sugar products	0.00	6.25	5.76	25.50	1.00	15.40	..	5.82	7.48	17.30	..	13.07
Cereal products	2.75	3.85	4.43	6.37	12.86	20.79	0.87	4.32	3.12	1.35	11.65	11.65
Vegetable oils	0.00	3.00	..	0.14	4.20	..	35.42	1.83	..	0.00	1.10	..
Coffee, tea and spices	0.08	0.00	5.14	1.63	10.60	20.02	0.37	0.07	5.35	0.11	8.63	8.00
Fruits and vegetables	0.89	4.56	3.16	7.07	8.44	17.92	2.94	6.07	3.95	8.12	8.02	19.15
Tobacco	7.79	..	8.17	0.00	..	0.07	68.26	..	350.00	..	..	24.81
Other food	..	5.70	7.90	..	13.43	16.51	..	13.00	6.98	..	8.58	10.47
Animal food	0.01	3.17	0.26	0.00	0.20	0.00	0.61	2.27	0.00	0.71	4.55	0.00
Hides and skins	0.00	0.00	13.05	0.00	0.64	19.47	0.00	0.25	12.49	0.00	0.00	8.54
Chemicals	2.28	..	3.46	2.55	..	1.67	3.84	..	2.10	2.92	..	3.09
Fertilizers and minerals	0.18	..	1.63	0.00	0.00	0.50	0.05	0.00	2.69	0.04	0.00	1.64
Petroleum products	0.00	..	3.17	..	..	1.08	..	..	0.39	0.00	..	0.91
Rubber products	0.00	0.00	5.53	0.00	0.00	0.09	0.00	0.00	2.98	0.00	0.13	3.61
Textiles	0.00	2.79	14.25	0.00	2.54	10.45	0.01	3.84	11.47	0.00	2.81	10.58
Metal products	0.00	..	2.81	0.00	..	0.87	0.00	..	2.19	0.00	..	2.88
Wood and cork	0.49	0.17	3.21	0.00	1.02	2.38	0.36	0.09	0.83	0.00	0.27	2.26
Coal	0.01	0.82	..	0.04	0.00	..	0.00	0.00	..	0.00	1.29	..
Gas	1.73	6.50	..	0.00	..	..	0.00	0.00	..	0.22	0.00	..

*Source:* UNCTAD elaborations on UNCTAD TRAINS data.

*Note:* R = raw materials; S = semi-finished products; F = finished products.

Table 9 provides a snapshot of the post-Uruguay Round tariff levels by product and by processing stage in the Quad markets. Several points emerge. First, with few exceptions, post-Uruguay Round tariffs escalate not only between raw and semi-finished but also, where appropriate, between semi-finished and finished. On average, the escalation in Canada and Japan and the EU is higher between raw and finished, while in the United States the highest average escalation is found between semi-finished and finished goods. From table 9 it is also evident that tariffs tend to escalate not only in agriculture but also in manufacturing. The average post-Uruguay Round tariff for all industrial products ranges from 0.8 per cent on raw materials to 4.8 per cent on the finished product.

A more detailed analysis of tariff escalation, distinguishing between markets of developing and developed countries, is provided in table 10. It shows that tariff escalation is not just a feature of developed markets but is present in fact (sometimes even more prominently) in developing countries as well.

Table 10. Tariff escalation in selected regional groupings (weighted average MFN tariffs, most recent years)

Product group	Asian NICs			South Asia			North America			Sub-Saharan Africa			Oceania			North Africa and Middle East			Latin America		
	R	S	F	R	S	F	R	S	F	R	S	F	R	S	F	R	S	F	R	S	F
Beverages	10.7	129.7	199.6	40.0	230.0	100.0	13.0	0.0	..	25.8	25.0	30.7	2.5	..	4.4	26.0	..	1350.0	24.2	25.2	25.9
Cereals	1.9	7.9	9.1	0.0	34.0	40.0	0.8	8.4	9.3	11.8	20.2	24.8	0.0	2.1	4.6	6.2	20.1	20.3	13.3	15.7	17.1
Chemicals	4.7	..	7.3	34.2	..	34.7	4.4	..	3.0	4.0	..	10.1	1.2	..	3.0	11.0	..	15.5	9.6	..	12.3
Dairy	10.7	11.6	12.6	35.0	0.0	35.0	16.4	13.4	11.8	16.1	24.5	24.8	0.0	0.0	0.0	12.0	13.8	14.8	15.7	29.8	37.9
Animal feed	4.7	3.6	1.7	40.0	40.0	35.0	0.8	2.3	0.0	5.0	5.5	4.4	0.0	0.0	0.0	14.9	5.0	5.0	11.0	11.0	10.1
Fertilizers	2.9	4.0	9.8	25.9	35.0	38.9	0.3	0.0	4.9	4.6	12.5	14.1	0.9	..	4.1	13.7	..	22.0	8.3	0.0	15.4
Fish products	6.4	12.6	12.0	15.0	15.0	15.0	0.7	3.3	1.7	21.6	21.2	22.9	0.0	0.1	0.0	7.7	26.0	30.0	18.2	19.5	15.9
Fruits and vegetable products	14.1	10.1	11.7	22.5	38.2	40.0	4.0	8.4	6.3	10.6	12.7	30.2	0.5	2.8	4.8	17.5	17.5	20.3	11.0	14.7	19.3
Leather products	0.5	4.5	11.3	0.0	14.0	32.9	0.0	0.6	9.7	2.8	5.0	21.1	0.0	0.0	7.6	5.0	5.0	27.1	5.4	13.0	22.8
Metal products	1.5	..	8.8	18.7	..	33.1	0.0	..	2.6	2.5	..	12.2	0.0	..	4.1	5.4	..	18.8	6.4	..	16.0
Oil seeds	6.8	2.0	..	40.0	..	..	29.6	1.7	..	15.6	25.0	..	0.8	0.0	..	8.9	10.0	..	4.5	14.2	..
Petroleum products	4.2	..	5.1	20.0	..	37.5	..	..	1.7	2.5	..	6.7	0.0	..	0.4	5.0	..	13.1	1.5	..	11.1
Rubber products	2.7	10.4	14.9	30.0	40.0	40.0	0.0	0.0	2.7	4.0	4.9	17.3	0.0	5.0	7.4	8.9	9.6	18.7	7.4	12.2	17.0
Sugar products	12.2	12.1	5.4	40.0	23.3	36.7	..	5.8	6.4	22.7	16.7	24.8	0.0	2.5	4.8	12.0	7.3	19.4	20.0	19.8	19.5
Textiles and clothing	3.0	4.2	14.6	24.0	32.6	39.3	0.0	2.2	9.7	2.2	8.4	23.0	0.5	0.8	13.1	5.0	13.7	31.1	10.4	13.4	22.5
Tobacco	154.1	..	204.9	40.0	..	40.0	58.3	..	350.0	5.6	..	33.6	0.0	..	0.0	..	..	63.3	24.3	..	32.0
Wood products	4.8	0.3	11.4	20.0	16.8	37.1	0.1	0.3	1.5	3.6	6.1	16.7	0.0	3.3	4.3	6.4	11.8	21.3	9.4	11.4	16.1

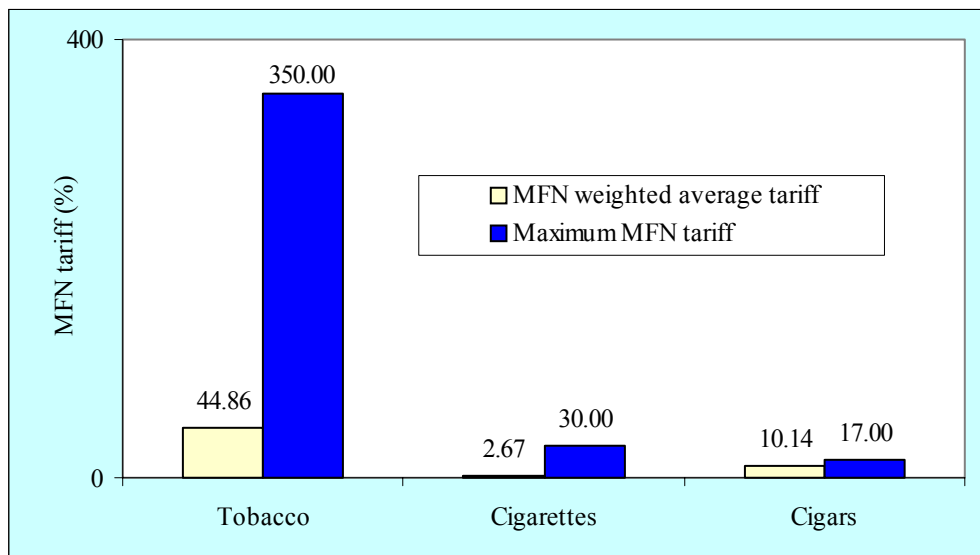
Source: UNCTAD elaborations on UNCTAD TRAINS data.

Note: R = raw materials; S = semi-finished products; F = finished products.

As noted earlier in the case of Quad countries, in most cases escalation in developing countries is greatest between raw and finished products. However, as in the case of the United States, in Asian NICs, there is de-escalation between raw and semi-finished products, and the highest escalation is found between semi-finished and finished products. Moreover, if one goes beyond these rather aggregate numbers, a product-by-product examination of the absolute difference between tariffs at different stages of processing reveals that not only is escalation present but that in some cases de-escalation also has occurred both in terms of weighted averages and maximum tariffs applied (figures 9 and 10).<sup>11</sup>

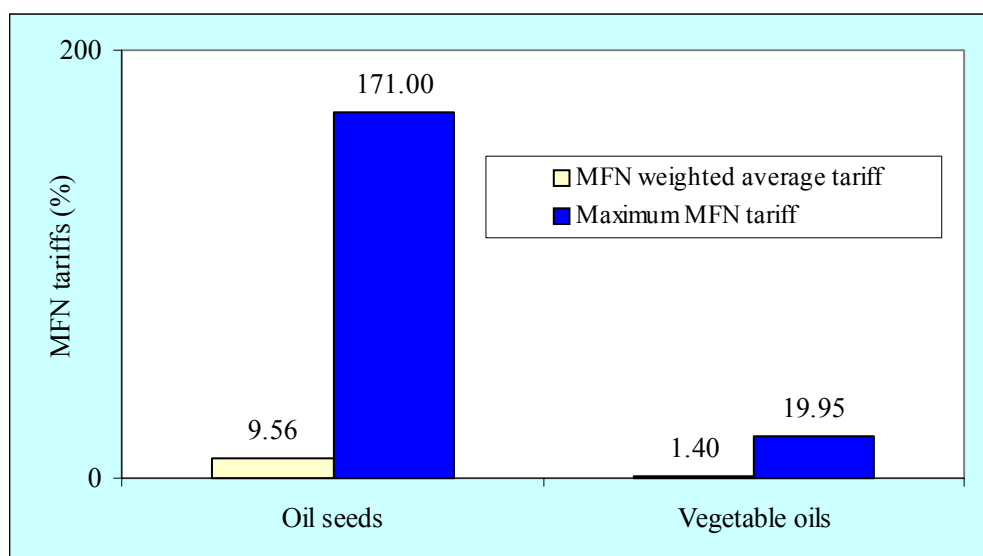
In summary, the evidence shows that tariff escalation is a quite widespread phenomenon that affects both agricultural and industrial products, and is present in markets of both developed and developing countries.

**Figure 9. Tariff de-escalation in tobacco products  
(applied MFN rates)**



Source: UNCTAD computations on the UNCTAD TRAINS database.

**Figure 10. Tariff de-escalation in oil seeds and vegetable oils  
(applied MFN rates)**



Source: UNCTAD computations on the UNCTAD TRAINS database.

**Notes:**

- <sup>1</sup> For a review of these estimates, see Safadi and Laird (1996).
- <sup>2</sup> Hatta and Fukushima (1979) and Lloyd (1974), for instance, independently show that either a reduction in tariff peaks to the next lower level (“concertina” method) or an equi-proportionate reduction for all tariffs raises global welfare. However, once tariff peaks are in place their removal may be problematic. For a small country case, however, Lopez and Panagariya (1992) found that the Hatta-Lloyd theorem does not necessarily hold since piecemeal trade liberalization such as the one adopted in the concertina method may lower welfare in the presence of imported intermediate goods. This finding is particularly important for developing countries the bulk of whose imports are intermediate and capital goods. Therefore, developing countries are particularly interested in finding optimal ways of reducing or eliminating tariff peaks and tariff escalation.
- <sup>3</sup> Note, however, that even in terms of average bound tariffs on industrial products, there are relatively large differences among developed countries, ranging from 1.8 per cent for Switzerland to Australia with 14.2 per cent.
- <sup>4</sup> Exceptions from tariffication were certain “designated products” that were deemed to be very sensitive for non-trade concerns. For these products non-tariff barriers were allowed until the end of the implementation period. Examples of such products are rice in Japan, rice, oranges and beef in the Republic of Korea, etc.
- <sup>5</sup> These are not analysed in detail here, but account is taken of them in the simulations carried out in section V, and in drawing some tentative consequential policy conclusions.
- <sup>6</sup> For an analysis of the potential protectionist use of food standards, see, for instance, Henson et al. (1999).
- <sup>7</sup> In certain cases, very high tariffs on tobacco products are justified – quite apart from the fact that they raise tariff revenues – by national health reasons.
- <sup>8</sup> In tables 8-10, the average number of domestic peaks measures the number of rates at tariff line level that are three times higher than the national average as a percentage of the total number of tariff lines. International tariff peaks shows the number of tariff lines with tariffs higher than 15 per cent.
- <sup>9</sup> In the case of Latin America, for instance, many countries in the region maintain a flat bound tariff rate on industrial products (WTO, 2001) but applied rates vary significantly. Therefore, for these individual countries the average number of domestic peaks is equal to zero.
- <sup>10</sup> Again, this indicator may also be subject to misinterpretation. For example, a country that applies a flat rate of 16 per cent, for instance, will show up as having a 100 per cent incidence of international tariff peaks, while in reality its tariff structure is perfectly uniform.
- <sup>11</sup> It should be noted that even though tariffs on cigarettes are on average much lower than tariffs on raw tobacco (figure 9), the market share of developing countries in cigarettes remains marginal, compared with the share of raw tobacco.

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#### ***IV. DOHA AND MARKET ACCESS: THE CHALLENGES AHEAD***

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In Doha, WTO Ministers agreed to launch “a broad and balanced work programme which includes an expanded negotiating agenda and other important decisions and activities necessary to address the challenges facing the multilateral trading system”.<sup>1</sup> The agenda contains matters for immediate negotiation, matters for future negotiations that are subject to “explicit consensus” among WTO Members on modalities, to be decided at the Fifth Ministerial Meeting (scheduled for 2003), and matters for further examination in relevant WTO bodies.

In the first category are included negotiations on agriculture, services, industrial goods, environment, WTO rules regarding anti-dumping, subsidies and countervailing measures, dispute settlements, regional agreements and fisheries subsidies. As discussed earlier, in this paper the focus is on market access issues in the area of merchandise trade.

*Agriculture* is of critical importance to many developing countries in terms of gross domestic product (GDP) and employment, and thus plays a key role in meeting development objectives such as poverty alleviation and food security. Negotiations on agriculture began already in 2000 under the “built-in agenda” of the Uruguay Round, with the long-term objective of establishing “a fair and market-oriented trading system through a programme of fundamental reform encompassing strengthened rules and specific commitments on support and protection in order to correct and prevent restrictions and distortions in world agricultural markets”. The negotiations are aimed at “substantial improvements in market access; reductions of, with a view to phasing out, all forms of export subsidies; and



substantial reductions in trade-distorting domestic support”. There is to be special and differential treatment for developing countries in negotiations and eventual concessions and commitments, and “as appropriate in the rules and disciplines to be negotiated, so as to be operationally effective and to enable developing countries to effectively take account of their development needs, including food security and rural development”. Non-trade concerns are to be taken into account in the negotiations, as provided for in the Agreement on Agriculture.

In the Uruguay Round non-tariff barriers were eliminated or converted into tariffs on the basis of computations by each WTO Member, and these tariffs were then reduced by 36 per cent (24 per cent by developing countries) over the implementation period. However, tariffs on traditional agricultural exports of developing countries (primary commodities and agricultural raw materials) are either zero or minimal in developed country markets, except for a limited number of “sensitive” products such as sugar, rice and tobacco. Given a continual deterioration in the terms of trade in those sectors, the export interests of developing countries have shifted in recent years to sectors with high value-added and faster growth, such as processed food products and fresh/frozen vegetables, fruits and cut flowers. Tariff barriers against those products are significantly higher (with frequent occurrence of tariff peaks), more complex and non-transparent than those against traditional exports.

In Doha no targets, negotiating modalities or timetables for implementation were agreed. However, to meet the objectives of the developing countries, the negotiations would need to address tariff peaks and escalation, tariff quotas and their administration, and improved transparency, perhaps through the elimination of the use of specific tariffs (although there is a danger that these could be replaced by countervailing or anti-dumping measures). One possible modality which would ensure substantial cuts in the bound tariffs, specifically targeting tariff peaks and tariff escalation, is the application of a harmonized tariff-cut formula (e.g. the Swiss Formula), as proposed by many developing countries, both the net food-exporting and the net food-importing ones. Developing countries would like to see the elimination of the use of special safeguard measures (SSG) in developed countries or exemption from their application.

The elimination of export subsidies – already reduced by 36 per cent in the Uruguay Round (14 per cent for developing countries)<sup>2</sup> would improve export opportunities for many developing country exports while safeguarding the domestic producers in importing countries from artificially low-priced food imports. This policy change is included in the CGE simulation scenarios performed below.

Immediate negotiations are also programmed on market access for *industrial goods*, with the aim at reducing or eliminating tariff peaks and tariff escalation, as well as non-tariff measures affecting all products and in particular products of interest to developing countries. Support for negotiations on market access for industrial products, essentially tariff negotiations, grew up to and beyond the Seattle Ministerial Meeting. This support seems to have been based on the realization that inclusion of industrial products would permit some

cross-sectoral trade-offs with the built-in market access negotiations on agriculture and services. There was also a realization that developing countries have much to gain in this area since tariffs on their exports are particularly high and there are welfare gains to be obtained from further liberalization in this area. On the other hand, some developing countries are concerned that making further concessions could limit their scope for industrial development programmes.

Overall, as shown in the previous section, industrial tariffs are now modest, with the trade-weighted average tariff on industrial goods in the developed countries standing at some 3.5 per cent at the end of 2000. However, this does not take account of high tariff peaks and escalation.<sup>3</sup> As we have also seen, these high rates, in both developed and developing country markets, are often concentrated in products of export interest to the developing countries. Developing countries' bound tariffs affecting imports of manufactures are also relatively high, but applied MFN rates and preferences under regional trading arrangements (RTAs) are lower in practice (Laird, 1999). The potential gains from liberalization in this sector are discussed in the next section.

Another issue of concern to developing countries is the possible erosion of tariff preferences such as those granted under the Generalized System of Preferences (GSP). On the other hand, developing countries may also be expected to gain from the erosion in intra-industrial country preferences, e.g. intra-EU trade, EU-EFTA, Canada-United States trade, etc. Any negative effects on developing countries from further MFN liberalization may need to be addressed with appropriate support measures.

Liberalization in *textiles and clothing* (the "integration of textiles and clothing into the GATT 1994") has been a key concern of the developing countries in relation to the implementation of the Uruguay Round Agreements. Following nearly 50 years of restrictions, the Agreement on Textiles and Clothing (ATC) defines three successive stages for liberalization in textiles and clothing: 1995-1997, 1998-2001 and 2002-2004. On 1 January 2005, the textiles and clothing sector should be in full compliance with the rules of GATT 1994. However, the WTO Textile Monitoring Body (TMB) has reported that while there has been progress towards bringing trade in textiles under the GATT 1994 disciplines, a significant number of restrictions are still in place, causing serious disappointment to a large number of developing countries that are major textile exporters. While the overall liberalization target of 51 per cent on 1 January 2002 (the beginning of the third stage of integration provided for by the ATC) is on track according to the strict provisions of the agreement, only about 20 per cent of imports under specific quota restrictions have been liberalized by the United States and the European Community (WTO, 2001b). This process of holding off the major liberalization until the end of the implementation period ("backloading"), together with the use of special safeguards, tariff increases, restrictive rules of origin and anti-dumping, has been a major concern. Annex II of the Doha Decision on Implementation-Related Issues and Concerns contains important provisions to encourage faster movement on textile quota liberalization and an agreement by liberalizing countries to exercise restraint in the application of anti-dumping for two years after the full integra-

tion of textiles and clothing into the GATT 1994. How these exhortatory provisions will work in practice remains to be seen.

One question that still needs to be addressed is how to link these stylized facts on dynamics of trade patterns and market access with the theory predictions surveyed at the beginning of this section. While some preliminary conclusions have been already formulated, a more elaborate answer would require a thorough empirical analysis. This issue is further analysed in the next section, where, on the basis of a widely used CGE model for policy analysis, a series of simulations are performed in order to identify the magnitude and direction of changes arising from a new round of multilateral liberalization.

#### Notes:

<sup>1</sup> WTO document, WT/MIN(01)/DEC/1 of 20 November 2001.

<sup>2</sup> An additional guarantee of reductions stemmed from the second condition, namely that the volume of subsidized exports had to be reduced by 21 per cent from the base period level.

<sup>3</sup> A number of complex technical questions to be resolved in relation to tariff negotiations are reviewed in Laird (1999).

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## ***V. ESTIMATED GAINS FROM MULTILATERAL TRADE LIBERALIZATION***

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There have been a number of attempts to estimate in quantitative terms the potential gains from trade liberalization. Most of the recent work aimed at assessing *ex-ante* the effects of trade policy reform is based on computable equilibrium models. Given a (partial or general equilibrium) model to represent the economies under study, the objective is to determine the change in the main endogenous variables (e.g. trade flows, consumption and production) associated with exogenous changes in policy variables (e.g. tariffs), assumed to be exogenous. The link between endogenous variables and policy variables is a complex one, which is shaped by the assumed structure of the model (number of equations, functional forms, etc.) and the numerical value of a set of relevant parameters (e.g. technology parameters, demand elasticities, etc.).<sup>1</sup> The models used for this kind of analysis differ widely. A model can be a partial or general equilibrium one, may account for many effects (e.g. non-constant returns to scale in production) or only few of them, may be defined at a high level of country and sector disaggregation or provide only an aggregate representation.<sup>2</sup>

The systematic use of CGE models to simulate the effects of trade negotiations started during the Tokyo Round (see, e.g. Deardoff and Stern, 1981; Whalley, 1985). Rapid progress has been made since then, as regards both modelling and data collection and assembly. Results from CGE simulations had a wide echo before the conclusion of the Uruguay Round, and contributed to a certain extent to persuading the GATT contracting parties to conclude the Round, showing that nearly all countries would have lost opportunities from a failure to reach agreement (see the surveys of Harrison, Rutherford and Tarr, 1996 and Francois, McDonald and Nordström, 1993, 1994).<sup>3</sup>

In recent years, several CGE analyses of the effects of trade policy reforms in a future WTO Round have been produced. Some of them only consider agricultural liberalization, other include manufacturing tariff reform. Only a few analyses consider the impact of service trade liberalization, mainly because of poor data on trade flows in the services sector and poor measurement of service trade barriers. Table 11 summarizes the findings of recent CGE work concerning the global gains associated with future possible trade liberalization scenarios. Results differ quite widely, especially when broad liberalization scenarios are considered (i.e., when manufacturing and services liberalization are included).<sup>4</sup> The sources of the discrepancies are several. Much of the difference in the estimated gains is to be attributed to a different assessment of the liberalization prospects. Some studies assume deeper or more comprehensive cuts in trade barriers than other. Results are also sensitive to the model specification. In particular, liberalization gains are higher in models allowing for increasing returns to scale and imperfect competition in the manufacturing sector. The gains are further enhanced in specifications allowing for dynamic effects of trade liberalization, associated with trade-related changes in savings and investment or with developments in productivity. A further motive for differences in results has to do with the chosen baseline. In most recent studies it is used the GTAP dataset used to replicate the world economy. The most updated versions of the dataset tend to yield lower estimates of the liberalization effects since the status-quo level of trade barriers is lower. Finally, the estimates from CGE models are quite sensitive to their dimensionality (the number of sectors and regions considered), the chosen values for elasticity parameters and the followed closure rule.<sup>5</sup>

It is worth noting the very large gains that have been estimated for liberalization of trade in services (Brown, Deardoff and Stern, 2001, World Bank, 2001). These large gains are due to two basic reasons. First, services account for a large share in consumption in most middle and high-income countries, much larger for instance than that of agriculture. Second, services are major inputs in the production of manufactures (and of services themselves). Hence, any trade-related reduction in the prices of services will translate into a widespread productivity gain for liberalizing economies. For these reasons, CGE models tend to yield high gains from the liberalization of the service sector, especially when trade-induced effects on productivity are taken into account (see, e.g., World Bank, 2001). However, it should be noted that the CGE modelling of liberalization in the service is still very tentative. The limitations of these exercises are not only found in the lack of reliable and comprehensive data on trade flows and trade barriers in services, but also in the difficulties encountered in making operational such measures in CGE analysis and in adequately representing the major links through which trade liberalization in service trade affects the whole economy.

A final caveat to be mentioned with the use CGE models concerns the usual assumption of efficient factor markets and the neglect of supply-side rigidities and bottlenecks. In developing countries factor markets are far from being efficient (mainly due to underdeveloped institutions and imperfect sectoral mobility) and supply rigidities are quite widespread. Ignoring these characteristic features of developing economies may lead to an overestimation of the short-run allocation gains associated with trade liberalization.

**Table 11. Estimates of global welfare effects of multilateral trade liberalization**

	<b>Model and dataset*</b>	<b>Policy experiments</b>	<b>Welfare change (US\$b. p.a.)**</b>
Anderson, Hoekman, and Strutt, 1999	Model: Static, perfect competition Dataset: GTAP3	Full liberalization in all countries in all sectors	260
Nagarajan, 1999	Model: Static, increasing return to scale and imperfect competition in manufacturing Dataset: GTAP4	50 per cent cut in agricultural protection and implementation of additional trade facilitation measures	385
Dessus, Fukasaku, and Safadi, 1999	Model: Dynamic, perfect competition Dataset: GTAP4	Full merchandise trade	284 (exogenous productivity) 1210 (endogenous productivity)
Hertel et al., 1999	Model: Dynamic, constant returns to scale and perfect competition Dataset: GTAP4	40 per cent cut in agricultural tariff, export and production subsidies	70
Anderson et al., 2000	Model: Static, constant returns to scale Dataset: GTAP4	Full liberalization in agriculture Full merchandise trade liberalization	164 253
ABARE, 2000	Model: Static, perfect competition Dataset: GTAP5	50 per cent cut in agricultural support 50 per cent cut in agricultural support and 50 per cent reduction of import protection in all other sectors	53 (GDP in 2010) 94 (GDP in 2010)
Francois, 2000b	Model: Dynamic, monopolistic competition and imperfect competition in manufacturing, increasing returns from input variety Dataset: GTAP4	50 per cent cut in agricultural protection 50 per cent cut in agricultural, merchandise and service protection	27 (monopolistic competition) 21 (oligopoly) 384 (monopolistic competition) 233 (oligopoly)
Diao, Somwaru and Roe, 2001	Model: Static and dynamic with technological spillovers, constant returns to scale Dataset: GTAP5	Full removal of agricultural tariffs and in domestic agricultural support	31 (static version) 56 (dynamic version)
Scollay and Gilbert, 2001	Model: Dynamic, imperfect sectoral labour mobility Dataset: GTAP4	100 per cent cut in agricultural tariffs	69.43
World Bank, 2001	Model: Static and dynamic, constant returns to scale Database: GTAP5	100 per cent cut in merchandise protection 100 per cent cut in service protection	355 (static version) 830 (dynamic version) 1073 (developing countries only, static version)
Brown, Deardorff and Stern, 2001	Model: Static, increasing returns to scale, and monopolistic competition in manufacturing Dataset: GTAP4	100 per cent cut in agricultural tariffs 100 per cent cut in all merchandise and service protection	33 1857
Van Meijl and Van Tongeren, 2001	Model: Static, perfect competition Dataset: GTAP5	100 per cent cut in agricultural tariffs and in domestic agricultural support 100 per cent cut in merchandise protection	44.4 78.3

\* Data in the GTAP3, GTAP4 and GTAP5 databases are referred to, respectively 1992, 1995, and 1997.

\*\* If not specified otherwise, welfare changes are measured by Equivalent Variation changes, i.e. by the money transfers necessary to make individual consumers indifferent between the status quo and the post-reform situation.

Notwithstanding the notable differences in results from different CGE analyses, it is possible to identify a number of common findings. First of all, the global welfare results concerning agricultural liberalization are quite similar across models and studies. This convergence of estimates for agricultural liberalization is to a large extent due to a consensus of modelling agriculture as a constant returns to scale sector where trade-related dynamic gains are quite limited. A second noteworthy common feature of static, constant returns to scale CGE models is that the global gains associated with (full) agricultural liberalization are not very different from those originating from trade liberalization in manufactures. Concerning the source of the gains, almost all studies show that the major source of the gains accruing to each country is its own liberalization, rather than that of partner countries.<sup>6</sup> As for the distribution of the global gains between developed and developing countries, in the majority of the studies it was found that the gains are shared quite equally between the two groups. Among developing countries, Asian countries will reap the largest gains (especially if manufacturing is also liberalized), while the gains for Latin American and African countries will be more limited. A further notable result found in several analyses are possible losses for sub-Saharan countries associated with agricultural liberalization, markedly with terms-of-trade developments consequent upon export subsidies removal.<sup>7</sup>

A consensus is emerging among modellers that, owing to the robustness problems described above, results from CGE analysis should be interpreted more in a qualitative than in a quantitative sense, and that putting too much emphasis on specific numbers and figures should be avoided (see, e.g., Francois, 2000a), for a discussion).

As may be observed, the estimated gains to global economic welfare on an annual basis vary widely according to the database, the assumptions of the model and the policy experiment (i.e. the trade liberalization scenario). Table 11 does not give a breakdown of the effects on developing countries; however, experience from a variety of modelling exercises shows that developing countries capture about 40 per cent of the gains, but these are not evenly distributed. In agriculture important gains go to those countries that liberalize, including the European Union and Japan. Developing countries that are exporters of commodities also make significant gains in relation to the level of their production. The textiles and clothing sectors are also very important, with important gains for China and other exporters. Estimates of the potential gains from liberalization of the services sector are substantial: while trade in services as a share of GDP is modest in most cases, the sector is important in most economies (and becomes larger as economies develop) and changes in trade policies in this sector therefore have far-reaching effects.

### **A. Current simulations**

In this section, the effects on the world economy of alternative liberalization scenarios are evaluated using CGE techniques, focusing on merchandise trade, particularly agriculture, for which the effects of both tariffs and export subsidies are analysed. The scenarios considered should not be regarded as an attempt to reproduce closely the outcome

of the current WTO trade negotiations.<sup>8</sup> Rather, the aim is to define a range for the possible magnitude of gains and losses associated with possible trade policy reforms that may be implemented in the years ahead and to assess how these gains and losses might be distributed across countries. Two main features characterize the following analysis with respect to previous studies. First, the status quo protection figures take into account the existence of preferential tariff schemes associated with non-reciprocal arrangements (e.g. the GSP) and with all major regional trade arrangements. Second, the eventuality of non-reciprocal liberalization in agriculture is considered, on the basis of the fact that WTO commitments concern the level of bound tariffs, and that for many developing countries actual tariffs in agriculture are quite lower compared with bound rates.

The model used in the simulation is the standard static GTAP model, with perfect competition in all sectors and constant returns to scale.<sup>9</sup> The database is GTAP5, final release, modified by UNCTAD to account for tariff preferences (related to GSP, non-reciprocal agreements as the Lomé-Cotonou agreement, and regional trade agreements) available from the UNCTAD TRAINS database. In spite of the well-known limitations of standard CGE models (absence of dynamic effects, perfect market clearing, lack of robustness with respect to model parameters, and so on), they are useful tool for assessing an order of magnitude for the distribution of gains and losses of trade liberalization, especially when the major trade reforms are assumed to take place in agriculture. In the experiment, the structure of the model is kept simple, so that liberalization gains and losses emerging from simulation analysis are easy to interpret, being associated with changes in allocation efficiency and in the terms of trade. While sectors will be kept quite aggregate, countries will be relatively disaggregated in the analysis, and will be grouped according to geography and level of development (see tables 22 and 23 for the description of sectoral and regional aggregations).

Results indicate that a 50 per cent reduction of tariffs in agriculture would increase world welfare by about \$20 billion, a figure that is in line with those obtained in recent studies. All world regions would gain from agricultural liberalization. As found in previous analyses, the elimination of tariffs is by far more important in improving the allocation of resources than the elimination of export subsidies.<sup>10</sup> Moreover, the elimination of export subsidies, if not coupled with tariff liberalization, would hurt some world regions, especially African countries. Finally, extending liberalization to all merchandise trade would almost double world gains and would benefit developing countries in particular (as found, e.g., in Hertel and Martin, 2000). However, the distribution of gains and losses from a comprehensive liberalization scenario would be very unequal across different groups of developing countries. While most Asian countries would gain substantially if tariff cuts in manufacturing were added to liberalization in agriculture, sub-Saharan Africa would incur market share losses and negative terms-of-trade developments.

The main focus of the experiments is on agricultural liberalization, which is both part of the built-in WTO agenda and one of the major pillars of the Doha agreement. As noted earlier, it is from liberalization in agriculture that most LDCs and many developing countries can obtain the largest export gains. The aggregation of six sectors and 12 world



regions is chosen in order to isolate the sectors most likely to be greatly affected by trade liberalization, allowing for an analysis of the effects of tariff escalation in agriculture and aggregation of countries to the smallest number of regions with some degree of geographical and economic homogeneity.

The protection data from the GTAP database that form the basis of the simulation experiments are shown in tables 4 and 5. These are, respectively, the simple averages of the tariffs applied by the chosen geographical aggregates and of those faced by their exports. They are based on applied MFN tariffs and the *ad valorem* equivalents for non-tariff protection in agriculture and in textiles and clothing.<sup>11</sup> Thus, GTAP protection data provide a convenient *ad valorem* assessment of most of the trade barriers currently used by Governments. Two caveats are to be entered, however. First, preferential tariff rates in the GTAP database are limited to a number of major reciprocal regional trade arrangements (e.g. EU, EFTA and NAFTA) and no account is taken of non-reciprocal preferential arrangements with development purposes. To correct for this, UNCTAD has modified the database from its TRAINS database to take into account the large share of preferential trade occurring in developing countries. Second, the database covers only applied tariffs, and not the bound rates that are the subject of multilateral negotiations.

A close look at table 4 helps in understanding the simulation results. Worldwide, protection appears to be concentrated in agriculture and textiles and apparel. The only areas that heavily protect other manufacturing are South Asia, Africa, transition economies and Latin America. In general, processed agriculture is much more protected than primary agriculture (a notable exception are Asian NICs). Those regions that protect agriculture more are Western Europe, Japan and North Africa. Textiles are particularly protected in South Asia, sub-Saharan Africa and Latin America. Finally, table 5 shows that the areas that face higher protection against their agricultural exports are China, Oceania and North America. In manufacturing, the regions that suffer the highest protection are Japan and China, whereas in textiles it is China, Asian NICs and transition economies.

In the first experiment, a worldwide reduction of 50 per cent in all agricultural tariffs brings about an aggregate welfare gain of \$21.5 billion (table 12). This estimate is in line with those recently produced using the GTAP5 database. All the world regions appear to gain, but gains differ widely both in absolute and in relative terms. The largest absolute gains are captured by Japan, North America, the NICs, North Africa and the Middle East, and Oceania. In percentage terms, those regions that appear to gain most are Oceania, the Asian NICs and North Africa. The estimated percentage gain for sub-Saharan Africa and Latin America is lower than in other studies conducted under similar assumptions (e.g., Diao, Somwaru, and Roe, 2001; van Meijl and van Tongeren, 2001). This is likely because of the inclusion of tariff preferences in the protection database used by UNCTAD. Since Africa and Latin America are among the major beneficiaries of preferential schemes, it seems likely that the gains from liberalization for these countries in other studies could be overstated when full account is not taken of tariff preferences as has been done here.

**Table 12. Agricultural tariff liberalization – welfare changes**

Regions	Values (1997 US\$ million)			
	Percentage change	Total	Terms of trade effect	Allocative effects
Asian NICs	0.342	3 363.6	-417.2	3840.4
China	0.082	964.0	-379.1	1 387.6
South Asia	0.074	361.2	-205.0	599.5
Western Europe	0.021	1 562.1	26.1	1574.0
North America	0.046	3 613.3	3 046.7	520.9
Transition Economies	0.118	900.8	-97.4	1 023.9
Sub-Saharan Africa	0.072	226.2	-197.0	437.2
Oceania	0.419	1 719.8	1 646.7	76.4
North Africa and Middle East	0.387	3 033.8	-1 720.7	4 867.5
Latin America	0.073	1 304.7	173.8	1 126.9
Japan	0.116	4 221.2	-2 029.8	6 019.8
Rest of the world	0.110	277.1	108.0	155.0
Total		21 547.9	-44.9	21 629.0

(50 per cent cut in all agricultural tariffs)

Looking at aggregate trade indicators (table 13), the value of exports increases in all regions after liberalization. Lower worldwide protection in agriculture translates into increased worldwide import demand and improved trade opportunities in all areas. Not all regions, however, profit equally from the increased trade potential. While the value of exports increases considerably in relative terms in Africa, Oceania and Latin America, export gains are quite modest for Western Europe.<sup>12</sup> As for terms-of-trade changes, the improvement is substantial for Oceania, while the biggest losses are observed in Japan, North Africa and South Asia.

**Table 13. Agricultural tariff liberalization – aggregate trade data**

Regions	Percentage change	
	Exports	Terms of trade
Asian NICs	0.888	-0.072
China	1.199	-0.083
South Asia	1.954	-0.302
Western Europe	0.476	0.006
North America	0.914	0.266
Transition economies	1.474	-0.045
Sub-Saharan Africa	1.810	-0.210
Oceania	2.299	1.833
North Africa and Middle East	2.829	-0.595
Latin America	1.708	0.056
Japan	1.763	-0.392
Rest of the world	2.248	0.223

(50 per cent worldwide cut in tariffs on processed agriculture)

The second experiment is the elimination of export subsidies in agriculture, without parallel changes in tariffs.<sup>13</sup> The results show modest worldwide welfare losses (table 14).

**Table 14. Liberalization in agriculture: export subsidy removal – welfare changes**

Regions	Values (1997 US\$ million)			
	Percentage change	Total	Terms of trade effect	Allocative effects
Asian NICs	-0.008	-73.9	-44.0	-10.9
China	-0.015	-178.8	-53.8	-96.4
South Asia	-0.000	-1.9	54.1	-56.3
Western Europe	0.033	2 410.0	1 699.7	628.8
North America	-0.001	-88.0	94.6	-182.1
Transition economies	-0.117	-891.5	-515.1	-374.1
Sub-Saharan Africa	-0.113	-354.9	-165.0	-192.3
Oceania	0.024	100.1	107.3	-3.6
North Africa and Middle East	-0.283	-2 209.7	-881.5	-1 329.5
Latin America	0.004	80.3	82.3	-29.6
Japan	-0.013	-484.9	-251.0	-170.2
Rest of the world	-0.063	-158.7	-124.8	-43.2
Total		-1 851.7	2.8	-1 859.3

These losses are mainly associated with a worsened allocation of resources within countries, because the elimination of export subsidies would not necessarily improve the allocation of resources while other major distortions remain in place. After the elimination of subsidies, all regions except Europe start increasing their agricultural value-added.<sup>14</sup> However, since many countries still face high protection against their agricultural exports, this shift might be counterproductive. Most regions actually stand to lose from the elimination of subsidies, while the gains appear to be very concentrated in Western Europe – which is the area characterized by the highest value of initial subsidies – and in regions that are net agricultural exporters, such as Oceania and Latin America.<sup>15</sup> Western Europe gains both from better resource allocation (the elimination of subsidies brings the specialization pattern of this region more into line with its natural comparative advantages) and from improved terms of trade. The removal of export subsidies directly reduces the agricultural exports of Western Europe, thus leading to a lower world supply for these goods and to improved terms of trade for Europe, whose exports are sold now at higher prices on international markets. As for the terms-of-trade effects on the other regions, they depend on their agricultural export pattern. Countries that are net agriculture and food exporters (e.g. North America, Oceania and Latin America) are likely to gain, while those that are not may lose (e.g. Asian NICs and North Africa).

Aggregate trade data (table 15) show that trade flows are reduced in some regions and increased in others by the elimination of subsidies. The largest percentage drop in exports occurs in sub-Saharan Africa and in Western Europe. Western Europe exports drop because of the direct effect of the elimination of export subsidies. The fall in sub-Saharan Africa's exports is mainly associated with reduced agricultural imports in Western Europe

**Table 15. Liberalization in agriculture: export subsidy removal – aggregate trade data**

Regions	Percentage change	
	Exports	Terms of trade
Asian NICs	0.008	-0.007
China	0.006	-0.013
South Asia	0.125	0.082
Western Europe	-0.124	0.065
North America	-0.013	0.013
Transition economies	-0.056	-0.172
Sub-Saharan Africa	-0.234	-0.161
Oceania	0.107	0.119
North Africa and Middle East	-0.148	-0.296
Latin America	0.056	0.035
Japan	-0.047	-0.061
Rest of the world	-0.225	-0.189

coming from that region. In fact, after the elimination of export subsidies, agricultural imports (in value) fall in the EU (owing to a reduced difference between domestic and world prices), and the region suffering most from that is Africa, for which the European market is traditionally of great relevance. Conversely, the exports of Latin America, Oceania and South Asia increase substantially in value, mainly as a result of improved terms of trade (higher world prices for agricultural products).<sup>16</sup>

In the third experiment, intended to look at the effects of tariff escalation in agriculture, tariffs are reduced by 50 per cent on processed agriculture only. Under this scenario, the global gains are roughly half those obtained from the liberalization of all agricultural sectors (table 16). The distribution of the gains are however quite different. While North America, Oceania and all Asian regions receive gains that are considerably smaller than those arising under the liberalization of all agricultural sectors, Africa and Latin America

**Table 16. Liberalization in agriculture: the role of tariff escalation – welfare changes**

Regions	Percentage change	Values (1997 US\$ million)		
		Total	Terms of trade effect	Allocative effects
Asian NICs	0.101	994.9	212.6	804.7
China	0.04	475.4	-271.0	761.9
South Asia	0.047	230.7	-167.0	418.3
Western Europe	0.022	1 613.2	936.2	742.4
North America	0.018	1 415.7	946.5	478.1
Transition economies	0.098	750.0	-97.1	857.7
Sub-Saharan Africa	0.049	153.0	-207.9	372.2
Oceania	0.232	951.4	899.4	51.9
North Africa and Middle East	0.26	2 036.4	-1168.5	3 274.6
Latin America	0.057	1 013.8	143.6	867.6
Japan	0.058	2 127.0	-1323.8	3 253.5
Rest of the world	0.096	242.1	80.2	140.4
Total		12 003.4	-17.0	12 023.3

(50 per cent worldwide cut in tariffs on processed agriculture)

obtain gains of a similar size, and Western Europe even finds the option of limiting liberalization to processed agriculture preferable. The smaller gains for South Asia than under the full liberalization scenario are explained by the high level of protection in primary agriculture in that region (table 4). Limiting liberalization to processed agriculture results in larger terms-of-trade gains for Western Europe, which compensate for smaller gains in allocative efficiency. As for North America and Oceania, the lower gains than under the full liberalization scenario are mainly due to unexploited terms-of-trade gains: both regions are net exporters of primary agriculture and would gain from its liberalization in terms of better export prices (compare table 17 with table 13). Finally, the fact that the African and Latin American regions appear to gain mostly from liberalization in processed agriculture is associated with the heavy protection faced by their processed agriculture and food exports, especially in Western Europe and Japan. These findings therefore support the thesis that developing countries bear the larger share of costs arising from tariff escalation in agriculture.

**Table 17. Liberalization in agriculture: the role of tariff escalation – aggregate trade data**

Regions	Percentage change	
	Exports	Terms of trade
Asian NICs	0.578	0.037
China	0.697	-0.059
South Asia	1.215	-0.243
Western Europe	0.340	0.038
North America	0.403	0.080
Transition economies	1.150	-0.039
Sub-Saharan Africa	1.324	-0.220
Oceania	1.425	1.003
North Africa and Middle East	1.706	-0.408
Latin America	1.042	0.042
Japan	1.196	-0.255
Rest of the world	1.843	0.183

(50 per cent worldwide cut in tariffs on processed agriculture)

Many developing countries apply agricultural tariffs that are well below the values bound as a result of the Uruguay Round negotiations. The fourth experiment, therefore, consists of a liberalization scenario in which developing countries, either because they are already applying rates lower than the bound ones, or for some other reason, are not reducing their applied tariffs in agriculture. A “broad” definition of developing country is considered: only Western Europe, North America, Japan and Oceania are treated as developed. Only these regions will be those to undertake a 50 per cent cut in their agricultural tariffs. Under this scenario, there is a considerable reduction in global gains compared with those arising from a worldwide tariff cut (table 18). Under the assumptions of the model, developing countries would not benefit from not participating in liberalization. Thus in this scenario, the larger share of the gains are captured by Japan, Oceania and North America. In spite of the fact that all developing countries would benefit from improved terms of trade (the better market access conditions in developed countries are not reciprocated), the allocation gains are so small that no developing country would benefit by not joining agricultural liberalization. While non-reciprocal liberalization can be helpful to beneficiary countries when targeted to a restricted number of beneficiaries, owing to a “fallacy of composition” argument the positive effects on terms of trade are almost negligible when the beneficiaries

**Table 18. Non-reciprocal tariff liberalization in agriculture – welfare changes**

Regions	Values (1997 US\$ million)			
	Percentage change	Total	Terms of trade effect	Allocative effects
Asian NICs	0.054	530.7	371.7	212.1
China	0.022	256.4	256.4	69.4
South Asia	0.000	-0.6	53.0	-42.8
Western Europe	0.003	220.7	-2158.7	2381.9
North America	0.017	1 333.2	956.8	463.9
Transition economies	0.071	545.5	410.4	129.5
Sub-Saharan Africa	0.054	168.7	125.7	43.0
Oceania	0.369	1 512.2	1447.3	70.2
North Africa and Middle East	0.003	26.0	54.9	-14.6
Latin America	0.045	812.9	578.8	215.2
Japan	0.109	3 984.6	-2272.1	6077.4
Rest of the world	0.096	241.8	151.9	49.3
Total		9 632.1	-23.8	9654.6

(50 per cent cut in all agricultural tariffs operated by developed countries only)

are the developing countries as a whole.<sup>17</sup> Thus, all regions are worse off compared with the case of a tariff reduction implemented worldwide. Interestingly enough, those regions that lose more with respect to worldwide liberalization are not developed countries, but some highly protected developing regions that do not have a comparative advantage in agriculture, such as Asian NICs, South Asia and North Africa. Looking at export changes (table 19), it may be noted that, by not liberalizing, developing countries compromise their own export expansion possibilities, since resources remain employed in import-competing sectors. The increase in the exports of each developing region is greater when liberalization occurs worldwide.

**Table 19. Non-reciprocal tariff liberalization in agriculture – aggregate trade data**

Regions	Percentage change	
	Exports	Terms of trade
Asian NICs	0.067	0.065
China	0.130	0.060
South Asia	0.263	0.080
Western Europe	0.369	-0.078
North America	0.556	0.084
Transition economies	0.204	0.146
Sub-Saharan Africa	0.193	0.131
Oceania	1.968	1.612
North Africa and Middle East	0.031	0.018
Latin America	0.342	0.176
Japan	1.495	-0.456
Rest of the world	0.933	0.365

(50 per cent cut in all agricultural tariffs operated by developed countries only)

Finally, under the fifth scenario there is a worldwide 50 per cent reduction of all merchandise tariffs. This results in a global welfare gain that is almost double that arising from liberalization in agriculture only (table 20).<sup>18</sup> The big gainers from adding manufacturing liberalization to agriculture liberalization are the Asian regions. Some countries, however, will not have an advantage from extending liberalization beyond agriculture. These are in particular North America, transition economies and sub-Saharan Africa, which would suffer from terms-of-trade losses by adding manufacturing liberalization. All these countries would see their market shares in textiles and clothing and other manufactures eroded by surging imports from Asia.

**Table 20. A comprehensive liberalization scenario – welfare changes**

Regions	Values (1997 US\$ million)			
	Percentage change	Total	Terms of trade effect	Allocative effects
Asian NICs	0.674	6 636.5	1 000.5	5 467.6
China	0.424	5 017.1	31.3	4 727.2
South Asia	0.282	1 383.3	-1 282.3	2 841.4
Western Europe	0.075	5 489.6	1 537.0	2 968.9
North America	0.023	1 778.0	435.7	1 565.7
Transition economies	0.079	603.1	-1 260.8	2 080.8
Sub-Saharan Africa	0.004	13.3	-889.5	1 022.9
Oceania	0.386	1 584.1	1 310.5	233.0
North Africa and Middle East	0.476	3 735.8	-2 315.7	6 350.7
Latin America	0.079	1 414.0	-2 358.2	4 289.9
Japan	0.307	11 207.4	3 619.4	7 441.4
Rest of the world	0.281	706.3	96.9	706.9
<b>Total</b>		<b>39 568.5</b>	<b>-75.1</b>	<b>39 696.4</b>

(50 per cent worldwide cut in tariffs on all merchandise trade)

The removal of all tariff protection boosts exports in all areas (table 21). The increase is in general much stronger than that associated with the elimination of agricultural tariffs only. The pattern of changes in export values is quite clear. The biggest increases in exports occur in low- to middle-income Asian countries (China, South Asia), followed by other developing countries and by Japan and Oceania. Western Europe and North America do not achieve a major expansion of their exports.

Overall, the simulations carried out here confirm what has been found in previous studies (e.g. Hertel and Martin, 2000; Hertel et al., 1999), namely that the inclusion of manufacturing liberalization in a “comprehensive round” of negotiations would be especially interesting for the developing countries. However, while this conclusion holds for developing economies taken as a single broad aggregate, there are regions, notably sub-Saharan Africa, that might actually lose from extending liberalization from agriculture alone to all merchandise trade. It is emphasized that these results do not take into account any change in the dynamics of world trade and production that might arise from wide liberali-

**Table 21. A comprehensive liberalization scenario – aggregate trade data**

Regions	Percentage change	
	Exports	Terms of trade
Asian NICs	3.899	0.168
China	7.458	0.012
South Asia	12.043	-1.747
Western Europe	1.105	0.078
North America	2.591	-0.008
Transition economies	3.86	-0.483
Sub-Saharan Africa	4.59	-0.927
Oceania	4.265	1.435
North Africa and Middle East	5.004	-0.806
Latin America	5.719	-0.734
Japan	5.512	0.752
Rest of the world	8.789	0.091

(50 per cent cut worldwide cut in tariffs on all merchandise trade)

zation, but they point to the need to be prepared for possible negative effects on developing countries of the adjustment to changes in global protection.

In conclusion, the main findings from the policy experiments are as follows:

- (a) Tariff cuts in agriculture would result in higher allocation gains compared with the elimination of export subsidies;
- (b) The elimination of export subsidies alone would hurt some developing world regions, especially in the African region, because of increased import prices for food and reduced import demand from Europe; and
- (c) On aggregate, developing countries would gain substantially from adding manufacturing liberalization to agricultural liberalization.

From the simulations emerge some new insights into the stake of different developing countries' aggregates:

- (a) There is no broadly defined developing world region that would gain by not participating in agricultural liberalization;
- (b) The large majority of gains accruing to low-income countries from agricultural liberalization come from the elimination of tariffs on food and processed agriculture;
- (c) Sub-Saharan Africa and transition economies may not gain by adding manufacturing MFN liberalization to liberalization in agriculture only.



In summary, the analysis shows that developing countries would gain substantially from liberalization in agriculture, especially if this coincides with a reduction in the extent of tariff escalation in developed countries. Even though the level of applied agricultural tariffs in many developing countries is lower than bound levels, almost all developing world regions would gain by further reducing their applied tariffs. Thus, unless there are major difficulties in replacing reduced tariff revenues with other tax sources (and under the assumptions of the model), developing countries may well benefit from the further opening their own markets in the extended WTO negotiations (after a period of inevitable adjustment). A caveat must be entered concerning the reform of agricultural export subsidies. The present analysis supports the concerns expressed by net food-importing developing countries regarding a possible deterioration in their terms of trade. These concerns would need to be addressed by special provisions in the WTO negotiations.

**Table 22. Sectoral aggregation used in simulations**

<b>Sector Aggregation</b>	<b>Original GTAP sectors included</b>
Natural resources	Forestry; Coal; Oil; Gas; Minerals.
Manufactures	Wood products; Paper products, publishing; Petroleum, coal products; Chemical, rubber, plastic prods; Mineral products nec; Ferrous metals; Metals; Metal products; Motor vehicles and parts; Transport equipment; Electronic equipment; Machinery and equipment; Manufactures.
Primary agriculture	Paddy rice; Wheat; Cereal grains; Vegetables, fruit, nuts; Oil seeds; Sugar cane, sugar beet; Crops; Cattle, sheep, goats, horses; Animal products; Raw milk; Wool, silk-worm cocoons; Fishing; Meat: cattle, sheep, goats, horses.
Processed agriculture	Plant-based fibres; Meat products nec; Vegetable oils and fats; Dairy products; Processed rice; Sugar; Food products; Beverages and tobacco products.
Textiles and apparel	Textiles; Wearing apparel; Leather products.
Services	Electricity; Gas manufacture, distribution; Water; Construction; Trade; Transport; Sea transport; Air transport; Communication; Financial services; Insurance; Business services; Recreation and other services; Pub. Admin. / Defence/ Health/ Education; Dwellings.

**Table 23. Regional aggregation used in simulations**

<b>Country aggregation</b>	<b>Original GTAP regions included</b>
Asian NICs	Rep. of Korea; Indonesia; Malaysia; Philippines; Singapore; Thailand; Viet Nam.
China	China; Hong Kong (China); Taiwan Province of China.
South Asia	Bangladesh; India; Sri Lanka; Rest of South Asia.
Western Europe	Austria; Belgium; Denmark; Finland; France; Germany; United Kingdom; Greece; Ireland; Italy; Luxembourg; Netherlands; Portugal; Spain; Sweden; Switzerland; Rest of EFTA.
North America	Canada; United States.
Transition economies	Hungary; Poland; Rest of Central European Assoc; Former Soviet Union.
Sub-Saharan Africa	Botswana; Rest of SACU (Namibia, South Africa); Malawi; Mozambique; United Rep. of Tanzania; Zambia; Zimbabwe; Other Southern Africa (Angola, Mauritius); Uganda; Rest of sub-Saharan Africa.
Oceania	Australia; New Zealand.
North Africa and Middle East	Turkey; Rest of Middle East; Morocco; Rest of North Africa.
Latin America	Mexico; Central America, Caribbean; Colombia; Peru; Venezuela; Rest of Andean Pact; Argentina; Brazil; Chile; Uruguay; Rest of South America.
Japan	Japan.
Rest of the World	Rest of the World

(Included in “Rest of the World”: Afghanistan, Albania, Andorra, Bermuda, Bosnia and Herzegovina, British Indian Ocean Territories, Brunei, Cambodia, Christmas Island, Cocos (Keeling) Islands, Croatia, Cyprus, Dem. People’s Rep. of Korea, Falkland Islands, Faroe Islands, Fiji, French Polynesia, Greenland, Johnston Island, Kiribati, Lao People’s Dem. Rep., Macao (China), Macedonia (former Yugoslav Republic of), Malta, Marshall Islands, Micronesia (Federated States of), Mongolia, Myanmar, Nauru, New Caledonia, Niue, Pacific Islands, Palau, Papua New Guinea, Pitcairn Islands, Saint Helena, Solomon Islands, Tokelau, Tonga, Tuvalu).

Notes:

- <sup>1</sup> Some model parameters can be directly measured from existing data or estimated using econometric techniques. Sometimes, when the parameters do not have a clear empirical counterpart, their value can be obtained only residually through a calibration procedure: given the observed values of endogenous variables and the estimated values of some parameters, the numerical value of the remaining parameters is determined from the model system if there are more equations than unknown.
- <sup>2</sup> See, for example, Francois and Reinert (1997) for an extensive treatment of different types of applied general equilibrium models.
- <sup>3</sup> The initial large estimates of the gains from the conclusion of the Uruguay Round were subsequently revised downwards, mainly after the realization that the implementation of the agreement would have led to smaller tariff cuts than initially estimated. For instance, the study by Francois, McDonald and Nordström (1993) assesses the global gains from the Uruguay Round at \$510 billion per year on the basis of 1990 prices, whilst in Harrison, Rutherford and Tarr (1996) the gains are well below \$200 billion at 1992 prices.
- <sup>4</sup> Among noteworthy attempts to compare the effects of the Uruguay Round obtained from alternative CGE experiments, see Martin and Winters (1996), Francois (2000a) and Whalley (2000).
- <sup>5</sup> The closure rule specifies which variables are considered exogenous in the model. In particular, the modeller has to choose whether to allow for an endogenous determination of the trade balance or to fix it at the same value as that in the status quo. As far as elasticity parameters are concerned, higher values for substitution elasticities in demand tend to be associated with greater liberalization effects.
- <sup>6</sup> See, on this point, Safadi and Laird (1996) and World Bank (2001, p. 167).
- <sup>7</sup> See Goldin and van der Mensbrugge (1996), Harrison, Rutherford and Tarr (1996), Diao, Somwaru and Roe (2001), and van Meijl and van Tongeren (2001).
- <sup>8</sup> There are several difficulties in simulating the outcome of actual multilateral trade agreements. First, what are negotiated at the WTO are bound tariffs, not applied tariffs. Databases for CGE analysis such as GTAP only include values for applied rates, and not for bound rates (see, however, Francois, 2000b, for a study using bound instead of applied tariff rates). Second, the committed cuts in protection may be quite different from the ones actually implemented. This is one of the basic reasons why the early studies on the Uruguay Round effects estimated larger gains compared with later studies (see, e.g., Francois, 2000a, and Whalley, 2000).
- <sup>9</sup> See Hertel (1997).
- <sup>10</sup> See, e.g., Harrison, Rutherford, and Tarr (1996), and Diao, Somwaru and Roe (2001).
- <sup>11</sup> For agriculture, the protective power of specific duties, combined duties and tariff rate quotas are translated into *ad valorem* equivalents. Non-tariff protection in textiles and apparel often takes the form of voluntary export restraints administered by exporters under the Multi-Fibre-Agreement. In GTAP, this is modelled as a vector of *ad valorem* export taxes.

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- <sup>12</sup> As found, for instance, in Diao, Somwaru and Roe (2001) and van Meijl and van Tongeren (2001). Francois (2000b), in a model including both imperfect competition and dynamic investments related effects, finds much bigger gains for Western Europe.
- <sup>13</sup> GTAP data on exports subsidies are derived from countries' notifications to the WTO (year 1998) concerning their subsidy expenditures. Only a limited number of countries notified export subsidies: the EU and EFTA, some Eastern Europe transition economies (Hungary, Poland and Czech Republic), the United States (dairy products only) and a few other middle- and low-income countries (Colombia, South Africa and Turkey). The simulation performed consists in setting to zero the value of export subsidies in primary and processed agriculture in Western Europe and transition economies, and in the United States with regard to processed agriculture (which comprises dairy products).
- <sup>14</sup> This simulation result is not reported (but it is available on request). Intuitively, after the elimination of subsidies domestic prices fall compared with world prices in the subsidizing regions (e.g. EU), and this leads to a shift of resources away from agriculture in these regions. Conversely, the reduced supply from subsidizing regions translates into higher world prices. This induces a shift towards agricultural production in non-subsidizing regions.
- <sup>15</sup> Similar results are obtained, for instance, in Harrison, Rutherford and Tarr (1996) and Diao, Somwaru and Roe (2001).
- <sup>16</sup> If the removal of export subsidies in agriculture is coupled with reduction in domestic support, the positive terms-of-trade effect on countries that are net agricultural exporters (e.g. Latin America and Oceania) would be strengthened further. In such a case, however, domestic production in Europe would fall even more, and this would lead to a more modest reduction in European imports, which would be particularly to the advantage of African countries.
- <sup>17</sup> See, for instance, Ianchovichina, Mattoo and Olarreaga (2001) and Bora, Cernat and Turrini (2002) for recent CGE assessments of the benefits received by LDCs from receiving duty- and quota-free access to developed countries' markets.
- <sup>18</sup> Note that these figures should be considered as lower bounds, since important sources of liberalization gains in manufacturing such as the exploitation of scale economies and the availability of imported inputs are neglected.

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## ***VI. CONCLUSIONS***

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One of the most challenging tasks for the Doha meeting was to ensure that the concerns of the developing countries were reflected in the negotiating mandates; and in the area of market access the texts agreed at that meeting provide an opportunity to improve developing countries' effective participation in international trade. But this cannot be taken for granted and will have to be given substance in the negotiations.

The paper shows that there are important biases against the trade of developing countries and that there are important gains to be made from further negotiations in market access. However, much depends on the effective participation of the developing countries in the negotiations.

The paper does not discuss a number of related and very important issues, such as tariff rate quotas and domestic supports. It touches on export subsidies only insofar as there is cross-linkage with market access liberalization. Some of the issues in the paper are relevant to a possible development box in agriculture, but any detailed discussion is beyond the scope of the paper. Again, there are implications for tariff preference schemes, but these are not discussed in any detail. As far as far as targets and modalities for the market access negotiations are concerned, these can in part be derived from the analysis of existing barriers and the liberalization scenarios. The following provide some pointers:

- A formula approach is in the best interests of the large majority of developing countries that have little bargaining power in bilateral request and offer negotiations because the small size of their market. A request and offer approach also tends to lead

to exceptions, especially in the most protected sectors (where developing countries are exporters).

- In order to tackle tariff peaks and escalation, there is a need to make deep cuts in protection against agricultural and manufactured exports of the developing countries. This could best be achieved by a harmonizing formula such as the Swiss formula, used in the Tokyo Round. However, a low Swiss coefficient to be generally applied may be too much too soon for many developing countries, and would mean that they would be making a much greater percentage reduction than developed countries. Thus, application of the same Swiss coefficient to developed and developing countries would imply greater percentage cuts by the developing countries as they start from a position of having higher rates. For example, applying a Swiss coefficient of 10 to base rates of 5 per cent and 40 per cent lead to average cuts of 33 per cent and 80 per cent, respectively. To obtain a broadly similar or slightly lower average cut by developing countries would require a substantially higher Swiss coefficient or some way of modulating the Swiss coefficient for higher rates.
- A linear cut in tariffs, e.g. 40 per cent by developed countries and 30 per cent by developing countries, would also go a long way to reducing tariff escalation and peaks. This is because a similar percentage cut on high rates makes a greater reduction in terms of *percentage points*, e.g., a 50 per cent cut changes a 40 per cent rate to 20 per cent, while it changes a 5 per cent rate to 2.5 per cent. This change in the higher rates leads to a much greater multiplier effect on trade creation (the increase in imports) resulting from liberalisation.<sup>1</sup> It also means that, proportionately, developing countries would be making a greater percentage contribution to trade expansion, while developed countries would be contributing more in absolute terms because of the greater volume of their trade.
- The Doha Declaration states that there are to be no a priori exclusions to the negotiations. If exceptions were to be allowed, then it would be desirable to set a target average cut as well as agreeing on the modality. Following the Uruguay Agreement on Agriculture, consideration should be given to establishing a minimum cut of, say, 15 per cent on each tariff line.
- Cutting low rates, for example through a zero-for-zero approach, may be administratively tidy but does not reduce paper work and can increase distortions in protection (Dee, Hardin and Schuele, 1998). In fact as much paperwork is required to justify duty-free access as to pay duties. Such paperwork is also required to prove origin, to collect domestic taxes and other charges on imports, and for TBT/SPS reasons.
- Tariff cutting should be based on bound MFN rates, as this is the only legal basis for negotiations. This should provide some latitude or “comfort zone” for developing countries where bound rates exceed applied rates. The resulting flexibility may also reduce the risk of resort to contingency protection, e.g. anti-dumping measures. While longer-term liberalization is widely accepted as beneficial, this is not always the expe-

rience in the short term, and developing countries may wish to have some policy space for adjustment. Support could be provided from the international finance institutions (IFIs) for countries that wish to move faster, without further conditionality.

- The Doha Declaration makes no explicit reference to the binding coverage. In agriculture this is 100 per cent for all WTO Members, but the binding coverage in non-agricultural products is lower for developing countries. Increasing the binding coverage would also be seen as making a positive contribution to the negotiations by increasing security in the conditions for trade, even where applied rates are not cut (as in the Uruguay Round negotiations in agriculture, where many countries made ceiling bindings). Setting new bound rates above applied rates would again provide policy flexibility for developing countries (see previous point). The new base rate would normally be established as the starting date for implementation of the results of the current negotiations.
- Developing countries should be able to avail themselves of their rights of less than full reciprocity under Article XXVIII *bis*, for example by being allowed a lower average cut in tariffs.
- There should be accelerated implementation of liberalization of tariffs on products of export interest to developing countries, especially the LDCs. A longer transition period should be provided for developing countries, especially the LDCs, but support should be provided by the IFIs – without further conditionality – for countries that are interested in implementing more rapidly.
- The elimination of non *ad valorem* rates would enhance transparency in tariff regimes. However, if it were felt that this could lead to an increase in anti-dumping actions, it might be preferable to allow specific rates with a maximum percentage equivalent and an obligation to publish the *ad valorem* equivalent of such rates.
- Rates should be based uniquely on the FOB or CIF value.
- Additional charges on services provided in trade imports should be based on the cost of the service, and not for example on a percentage of value. There is need for extra rigour in controlling the use of additional charges.

However, in addition to targets and modalities, there are certain important questions about strategies. It is emphasized that the modelling results discussed in the paper are comparative static, comparing two situations in time, without regard for the duration of any transition or adjustment costs, which may be considerable in political and economic terms. Under the assumptions of the modelling, the simulations show that:

- There are globally greater benefits from liberalizing simultaneously in manufactures and agriculture.

- There is a need to reduce export subsidies in agriculture in parallel with tariff liberalization; if they are not reduced, the negative terms-of-trade effects are greater for food importers.
- The countries/regions that liberalize tend to gain more, but not necessarily in the short term.
- There is no broadly defined developing world region that would gain by not participating in agricultural liberalization.
- There are small negative effects for some regions, especially in Africa. They suggest the need for support or social safety nets for these countries.
- The large majority of gains accruing to low-income countries from agricultural liberalization come from the elimination of tariffs on food and processed agriculture.

Many of these issues are technically highly complex and there are interactions across producers and whole sectors, as well as between different forms of existing intervention. For these reasons, many developing countries will need considerable assistance in the negotiations.

Assistance can take several forms. While analysis such as that presented in this and other papers may be of some value, they cannot hope to cover all products and issues from the perspective of all countries. Even among developing countries, there are quite diverse interests. For this reason it is also important to provide data and analytical tools that allow the developing countries to undertake their own assessment and develop their own positions. The data and analytical possibilities in the World Integrated Trade Solution (WITS), which is being developed by UNCTAD and the World Bank, are one such option which is now starting to be delivered to interested countries. Another is the Agricultural Trade Policy Simulation Model (ATPSM), which is being developed at UNCTAD in cooperation with FAO is another.<sup>2</sup> The ATPSM also uses data from the Agricultural Market Access Database (AMAD), stored at OECD and compiled as a cooperative effort of a number of national and international agencies.<sup>3</sup>

#### **Notes:**

<sup>1</sup> For example, using the standard formula for trade creation, and assuming an import demand elasticity of 2, a 50 per cent cut in base rates of 5 per cent and 40 per cent lead to trade increases of 2 per cent and 14 per cent, respectively.

<sup>2</sup> The development work and dissemination by UNCTAD is being supported by the UK Department for International Development.

<sup>3</sup> Recent work in extending the AMAD database at UNCTAD has been supported by the Government of Ireland.



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# QUESTIONNAIRE

## BACK TO BASICS: MARKET ACCESS ISSUES IN THE DOHA AGENDA

### *Readership Survey*

Since 1999, the Trade Analysis Branch of the Division on International Trade in Goods and Services, and Commodities of UNCTAD has been carrying out policy-oriented analytical work aimed at improving the understanding of current and emerging issues in international trade of concern to developing countries. In order to improve the quality of the work of the Branch, it would be useful to receive the views of readers on this and other similar publications. It would therefore be greatly appreciated if you could complete the following questionnaire and return to:

*Jenifer Tacardon-Mercado  
TAB/DITC, Rm. E-8054  
United Nations Conference on Trade and Development  
Palais des Nations  
CH-1211 Geneva 10, Switzerland*

1. Name and address of respondent (optional):

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2. Which of the following describes your area of work?

Government	<input type="checkbox"/>	Public enterprise	<input type="checkbox"/>
Private enterprise institution	<input type="checkbox"/>	Academic or research	<input type="checkbox"/>
International organization	<input type="checkbox"/>	Media	<input type="checkbox"/>
Not-for-profit organization	<input type="checkbox"/>	Other (specify) _____	

3. In which country do you work? \_\_\_\_\_

4. Did you find this publication  Very useful  Of some use  Little use  
to your work?

5. What is your assessment of the contents of this publication?  
 Excellent  Good  Adequate  Poor

6. Other comments:

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