

## Trade Patterns and Policies: Doha Options to Promote Development

### *Developing countries have become major players in the global economy*

Over the past two decades, developing countries have increased their share of global trade from about one-quarter to one-third. As a group, they have moved beyond their traditional specialization in agricultural and resource exports into manufactures. Countries that were low income in 1980 managed to raise exports of manufactures from roughly 20 percent of their total exports to more than 80 percent, and many have entered the ranks of today's middle-income countries. The middle-income group of 1980 also increased its manufactured share, but somewhat less rapidly, to reach nearly 70 percent. This dramatic change in trade volume and composition has given developing countries a new interest—and a powerful voice—in the ongoing Doha round.

These changes are not just due to declines in the prices of agricultural and resource commodities relative to manufactures—the strong shift in the composition of exports shows up even when price changes are removed. Further, it is not just an artifact of a few large, high-growth exporters such as China and India. The share of manufactures in the exports of developing countries other than China and India rose from one-tenth in 1980 to almost two-thirds in 2001. It increased sharply, but not equally, in all regions. The share of manufactures in merchandise exports is now between 80 and 90 percent in East Asia, Europe and

Central Asia, and South Asia, but only 60 percent in Latin America. Sub-Saharan Africa and the Middle East and North Africa have yet to reach the 30 percent mark, and many countries—particularly poor countries—remain dependent on exports of agricultural and resource commodities.

The rising tide of exports did not lift all boats. Forty three countries had *no increase* on average in their merchandise exports for the 20 years after 1980. Of this group, 20 countries remained strongly dependent on oil or other natural resources, such as phosphates for Nauru or copper for Zambia. Severe conflicts undercut the performance of another 18 countries, including Rwanda and Timor Leste. Trade embargos stifled the export performance of five other countries, including Libya and Sudan. In almost all these countries, the investment climate was not sufficiently favorable—for a range of reasons, sometimes resource depletion, sometimes poor economic management—to attract the investments needed to transform the pattern of exports.

### *Developing countries are moving into high-value-added products*

Growth in traditional labor-intensive manufactures accounts for only part of the gain in exports of manufactures. Exports of textiles and clothing from low-income countries grew at 14 percent per year between 1981 and 2001, but other commodity groups grew even faster.

Exports of electronic products, many of which did not exist in 1980, grew at 21 percent per year—fast enough to double every few years. Further, developing countries expanded their range of markets, with the share of developing-country markets growing from 15 to 35 percent over the period. The continual move to new products and new markets helped high-growth exporters like India and China to avoid sharp declines in their terms of trade, which, given the rapidity of their export growth, might otherwise have been expected.

Between 1991 and 2001, all regions improved their competitiveness in the global marketplace as measured by market share. Europe and Central Asia, Latin America, and South Asia outperformed the other regions, but all gained market share at the expense of the rich countries. This was not true in the preceding decade, when several regions lost market share, notably Europe and Central Asia, the Middle East and North Africa, and Sub-Saharan Africa.

*Why did such rapid and fundamental changes in trade patterns occur?*

Investments in people and in factories both played a role. Average educational levels and capital stock per worker rose sharply throughout the developing world. Also, improvements in transport and communications, in conjunction with developing-country reforms, allowed the production chain to be broken up into components, with developing countries playing a key role in global production sharing.

Policy was no less important. The dramatic liberalization of tariff and nontariff barriers in developing countries after the mid-1980s increased developing countries' competitiveness. The negative impacts of protection on all export activities declined, but more so for manufactures and processed primary products than for agriculture and natural resources. Although successive multilateral trade rounds liberalized global manufactures, rich countries continued to protect their agriculture. That pattern has

been progressively emulated by developing countries over the last two decades, with the result that developing countries' agricultural exports grew more slowly than if agriculture had taken the liberalizing path of manufactures.

*Now comes the hard part: reducing protection of sensitive sectors*

Developing-country exports now face obstacles in the most sensitive sectors. Industrial-country tariffs on manufactures from developing countries are five times higher than they are on manufactures from other industrial countries. The barriers imposed by developing countries on other developing countries, however, are even higher. Of course, protection takes forms other than *ad valorem* tariffs—among them quotas, specific duties, and antidumping duties. As with tariffs, these measures tend to be used more frequently against the labor-intensive products from developing countries. Average antidumping duties are ten times higher than tariffs in industrial countries, and around five times higher than in developing countries. In short, both groups of countries impose substantially higher barriers on exports from developing countries.

*The way in which protection is reduced will make a difference to developing countries*

Several approaches—modalities—for negotiations have been proposed for reducing tariffs on agricultural and nonagricultural goods. The 146 World Trade Organization (WTO) members are now discussing formulas that provide enough discipline to bring about liberalization and address tariff peaks and escalation, while offering enough flexibility to accommodate the constraints of all members. Besides tariffs, reform of the rules on antidumping measures is a critical priority. Antidumping measures, originally intended as a response to anticompetitive behavior, are now widely regarded as being used to facilitate market cartelization and are increasingly a source of nontransparent and costly protection.

## Changing patterns in developing-country exports

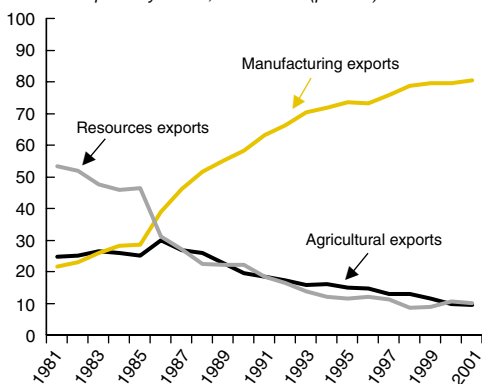
Historically, developing countries have been regarded as exporters of primary commodities and importers of manufactures, a theme repeated even in recent textbooks on development (Todaro 1994). The situation has changed drastically since the beginning of the 1980s, however, as developing countries have become important exporters of manufactured

products (figure 2.1). Manufacturing exports have risen in importance in high-income countries, with their share in total exports rising from around 70 percent to more than 80 percent in the 20 years preceding 2001. This shift was much more marked in the middle- and low-income countries. In the middle-income group, the share of manufactures in total exports rose from 20 percent to almost 70 percent over the period. In low-income countries,

**Figure 2.1** Developing countries have become important exporters of manufactured products

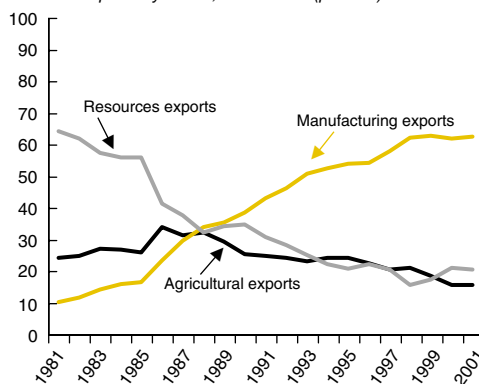
**a. Manufactured products now make up approximately 80 percent of exports from low-income countries**

Share of exports by sector, 1981–2001 (percent)



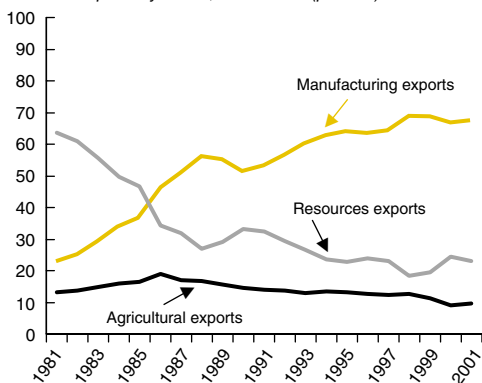
**b. When China and India are excluded, manufactures still make up more than 60 percent of exports**

Share of exports by sector, 1981–2001 (percent)



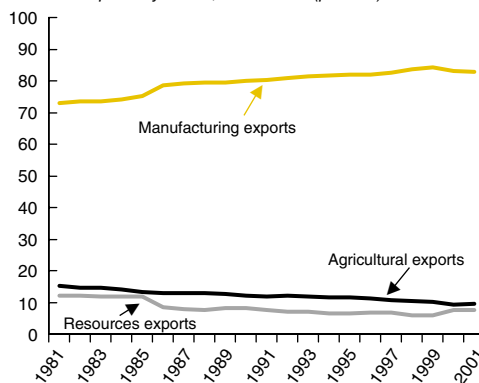
**c. Manufactures make up nearly 70 percent of exports from middle-income countries**

Share of exports by sector, 1981–2001 (percent)



**d. During the same period, export patterns of high-income countries have remained stable**

Share of exports by sector, 1981–2001 (percent)



the share of manufactures rose from 20 percent to more than 80 percent.

Nor are China and India the only countries driving these changes. Even when China and India are excluded, the rise in the share of manufactures is from 10 percent to more than 60 percent of total exports. Clearly, China and India are important, but much broader changes in the composition of developing-country exports are under way. If we eliminate the disproportionate effects of large exporters altogether, by considering simple average export shares, the average share of manufacturing exports rose from 25 percent to 50 percent in the unweighted low-income country group, and from 28 to 48 percent in the middle-income group.

The share of manufacturing exports in total exports has risen sharply in all regions (figure 2.2). In East Asia and the Pacific, the increase began from a high base—over 50 percent—but then increased to almost 90 percent by 2001. In Europe and Central Asia, the manufactures share began at an even higher level, over 60 percent, and rose to almost 90 percent by 2001. Because of Latin America's strong natural resource endowments (de Ferranti, Perry, Lederman, and Maloney 2002) the situation there was quite different initially, with manufactures contributing only 20 percent of total exports in 1981. That share had almost tripled by 2001—to more than 60 percent. In the Middle East and North Africa, resource exports, particularly oil, remain dominant, although their share fell from more than 90 percent to around 60 percent during the period under scrutiny, while the importance of manufacturing exports rose from close to zero to around 30 percent. In South Asia, manufacturing exports rose from around half of total exports to more than 80 percent. Resource-based exports and agricultural exports remained important in Sub-Saharan Africa, although the share of manufactures rose from 10 to 27 percent.

Clearly, agricultural and resource exports remain important for many countries and regions, particularly in Africa. However, the broad-based nature of the shift into manufacturing exports means that developing-country policymakers and others concerned about de-

velopment must consider the impact of policies on trade in manufactured products.<sup>1</sup>

### *Developing countries are moving up the value-added ladder*

A decomposition of the growth rates of exports from each group of countries by level of technology indicates that developing countries are gaining ground in higher-technology exports (table 2.1). The low-income group had by far the highest growth rate of total exports, at 14 percent per year—a rate sufficient to cause exports to expand 14-fold over the 20-year period considered.<sup>2</sup> The middle-income countries also experienced substantially higher growth rates than the high-income countries, suggesting that developing countries have been catching up with developed countries in their trade patterns—in strong contrast with the indications of divergence observed in many analyses of economic growth (Pritchett 1997).

At the product level, growth in exports of raw primary products was relatively low, at 2 percent per year globally. In processed agricultural products, such as meats, processed foods, alcoholic beverages, tobacco products, and processed woods, growth rates were substantially higher, at 6 percent globally, 7 percent for the low-income country group excluding China and India, and 12 percent for China and India.

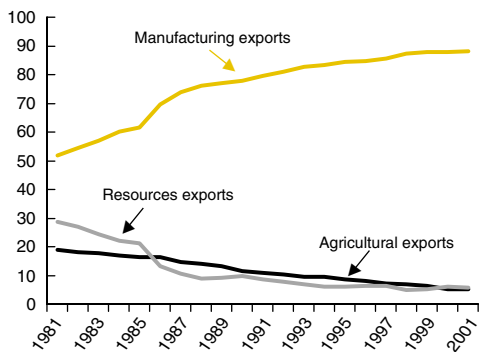
Trade in low-technology manufactures (such as textiles and clothing), simple manufactures (toys, sporting goods), and iron and steel products grew at rates substantially above the world average rate. Exports of these products from the low-income country group grew at much higher rates than from other country groups, with export growth rates of 14 percent for textiles and 16 percent for other low-technology products.

In medium-technology manufactures, a similar pattern emerges, with global growth rates above the world average, and growth rates of exports from low- and middle-income countries greatly outstripping rates from the high-income countries. Exports of automobiles and components from low- and middle-income countries grew particularly rapidly, at more

**Figure 2.2 Manufactures account for a growing share of exports in all regions**

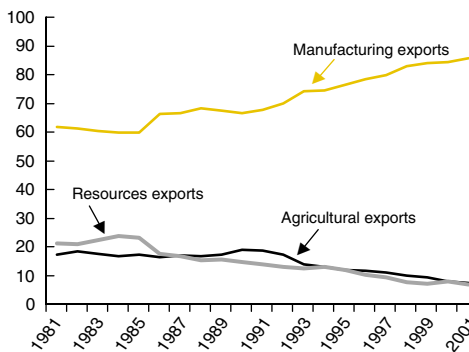
**a. Manufactures now make up almost 90 percent of exports from East Asian developing countries**

Share of exports by sector, East Asia and Pacific, 1981–2001 (percent)



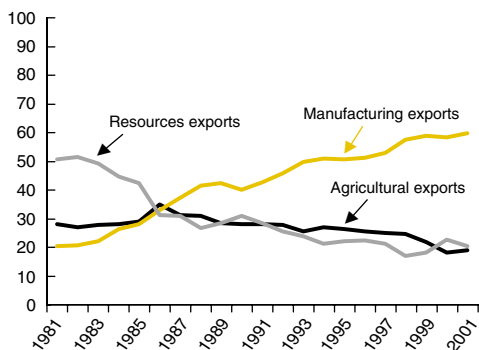
**b. The same is true of the developing countries of Europe and Central Asia**

Share of exports by sector, Europe and Central Asia, 1981–2001 (percent)



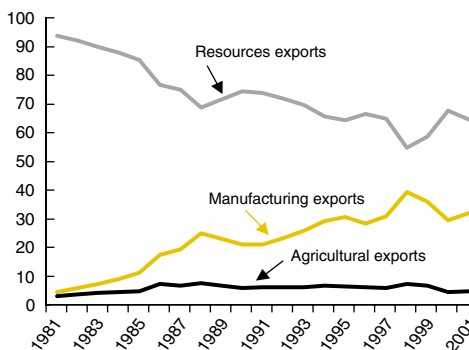
**c. The share of manufactures in exports from Latin America and the Caribbean tripled in the last two decades**

Share of exports by sector, Latin American and the Caribbean, 1981–2001 (percent)



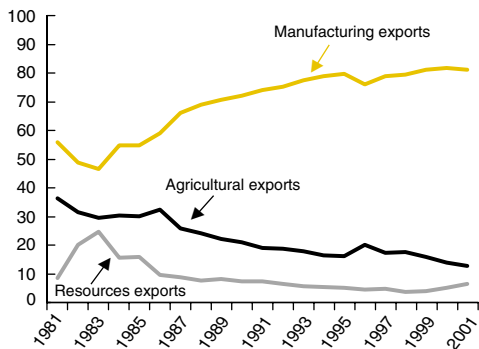
**d. Manufactures grew from insignificance in exports from the Middle East and North Africa**

Share of exports by sector, Middle East and North Africa, 1981–2001 (percent)



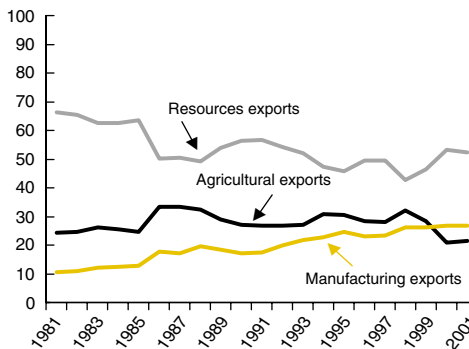
**e. Manufactures grew to almost 80 percent of exports from South Asia**

Share of exports by sector, South Asia, 1981–2001 (percent)



**f. The share of manufactures in exports from Sub-Saharan Africa nearly tripled, but from a low baseline**

Share of exports by sector, Sub-Saharan Africa, 1981–2001 (percent)



Source: COMTRADE.

**Table 2.1** Developing countries are becoming exporters of high-value products*Annual growth rates (percent)*

	Low income, less China and India	Low income	China and India	Middle income	High income	World
Primary products	1	2	5	1	4	2
Resource-based manufactures						
Agricultural	7	8	12	6	6	6
Other	4	7	10	5	5	5
Low-technology manufactures						
Textiles	14	15	15	7	5	8
Other	16	19	20	10	6	8
Medium-technology manufactures						
Automotive and components	22	20	19	19	7	8
Process industry products	14	13	12	11	6	7
Engineering products	21	23	24	12	7	8
High-technology manufactures						
Electronic	21	26	36	17	10	13
Other	10	16	20	12	9	9
Total	13	15	17	10	6	7

*Note:* Table 1 presents the annual growth rates by product group and by country groups assigned on the basis of 1981 income levels to avoid the selection bias that results when end-of-period attributes are used as the basis for selection. Product definitions are supplied by the WTO. Data analysis undertaken in World Integrated Trade Solutions (WITS) using “mirror” data from UN COMTRADE. Country groups defined by income status in 1981. While the results from this approach must be treated with some caution, because the level of technology of the process involved is frequently more important than the technology level of the product, examining the nature of the products being traded is clearly of interest.

*Source:* COMTRADE, WITS, WTO.

than 22 percent per year. Exports of engineering products such as engines, pumps, and instruments from low-income countries grew at close to 21 percent per year. The highest growth rates of all occurred in high-technology products—particularly electronic goods, such as computers, televisions, and components. World trade in these goods grew more than twice as fast as overall world trade. Export growth from low- and middle-income countries was much faster again, with exports of electronic products from low-income countries growing at the extraordinary rate of more than 21 percent per year—enough to expand exports almost 50-fold over the period.

***Low-income countries are less reliant than before on resource-based exports***

The importance of the growth rates noted above depends greatly on the share of each broad product type—resource-based, low-technology, medium-technology, and high-technology—in total exports.

Low-income countries showed the most dramatic transformation of export patterns

between 1981 and 2001 (figure 2.3). In 1981, these countries depended on resource-based products for 87 percent of their exports, a share that had fallen to 25 percent by 2001. The share of low-technology manufactures rose substantially, from 13 to 38 percent, while that of medium-technology exports went from 3 to 15 percent. High-technology exports exploded from 2 to 21 percent.

The middle-income countries in 1981 were originally much more dependent than other countries on resource-based products—an important contributor to their economic success up to that point (figure 2.3b). In 1981, resource-based products accounted for 81 percent of their exports, a share that fell to a still-substantial 39 percent in 2001. The share of low-technology manufactures rose from 9 to 18 percent in the same countries, while the share of medium-technology exports more than tripled from 6 to 27 percent, and high-technology manufactures jumped from 3 to 24 percent.

The transformation of high-income countries’ exports was much less dramatic than for

## Box 2.1 Poor export performance in 43 countries

Not all countries participated in the otherwise positive trends for developing countries. Forty-nine countries experienced negative real growth rates over the 20-year period for merchandise exports. Six of the 49 were tourism-based economies that did poorly in merchandise trade but in fact experienced rising national incomes associated with tourism exports.

Of the 43 export-contracting countries, poor performance was attributable to combinations of excessive dependence on one or two primary products, civil conflict, and politically motivated trade embargoes—often complicated by inept governance. In 1981, these countries derived an average of 85 percent of their export earnings from primary products; 20 years later the average was 75 percent. Of the 43 countries, 20 were less-developed countries.

Twenty cases were heavily dependent on one or two primary products, such as oil (Cameroon), phosphates (Nauru), or copper (Zambia), and failed to diversify over the next two decades. Cameroon, for example, despite its richness in natural resources, relies on oil for about one-third of export revenues, and timber or cocoa for much of the rest, leaving it vulnerable to fluctuation in the prices of these com-

modities. The oil boom led to a significant increase in public spending and a top-heavy civil service, which makes it difficult to respond swiftly to decreases in the price of oil. To make matters worse, the lack of a clear agricultural policy transformed the country into a net importer of food, accelerating the already deteriorating trade balance.

Eighteen countries experienced severe conflicts or war—among them Comoros, Rwanda, and Timor Leste. Another five countries, including Libya and Sudan, experienced trade embargoes.

A more felicitous tale is that of Barbados, one of the tourism-based economies. In 1981 the country was highly dependent on sugar. But progressive and stable political leadership, investments in education, and public investments in infrastructure to support tourism diversified and transformed the economy. Barbados once had the same per capita income as Jamaica; today it is one of the most prosperous countries in the Caribbean, with a per capita GDP of \$9,700 in 2000.

Source: World Bank staff.

the developing countries. The share of resource-based exports fell from 37 to 5 percent, while the share of low-technology exports remained close to 13 percent (figure 2.3c). The export share of medium-technology manufactures rose from 36 to 38 percent, while that of high-technology exports increased sharply—from 13 to 24 percent of total exports.

### *Global production sharing is creating new opportunities*

Much of the change in developing-country export patterns, and particularly the rise in high-technology exports, is associated with the phenomenon of global production sharing (Deardorff 2001; Hummels, Ishii, and Yi 2001). Production sharing benefits rich and poor countries by allowing production to be broken into discrete stages, each performed in

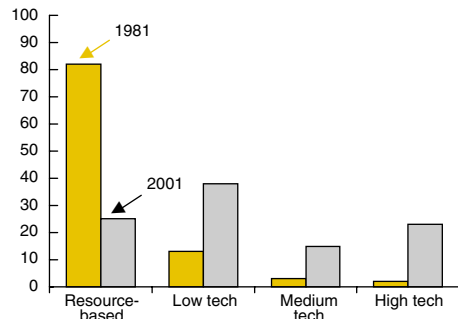
the countries best suited to it. Labor-intensive stages of production, for example, are typically done in labor-abundant countries. Potentially, production sharing can greatly expand the range of activities in which developing countries can participate—holding out the promise of increasing employment and reducing poverty.

Of course, breaking the once-rigid linkages among stages in the production process makes it more difficult to interpret the implications of the shift to manufactures—particularly high-technology products. In many cases, developing countries undertake only those production activities that require low-skilled labor—a low-tech part of the production of high-tech commodities. However, the buoyant demand for such commodities helps offset the relatively stagnant demand for some traditional agricul-

**Figure 2.3 Technology-laden manufactures have increased as a share of exports from each group of countries, while the share of resource-based exports has diminished**

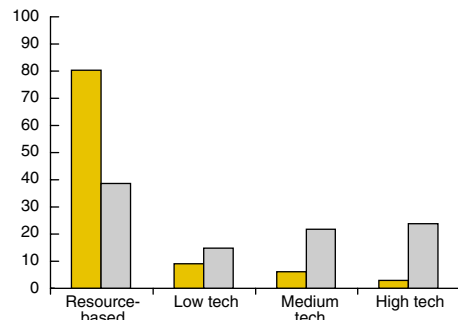
**a. Low-income countries are moving out of resource-based industries into low-technology exports**

Share of exports by sector, low-income countries, 1981–2001 (percent)



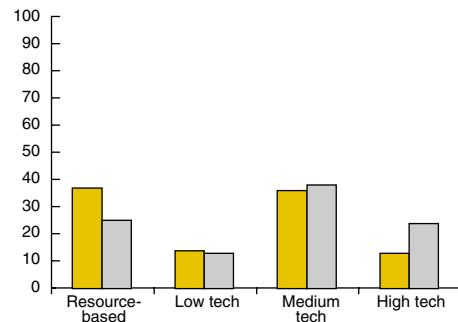
**b. Middle-income countries are increasing the level of technology in their exports**

Share of exports by sector, middle-income countries, 1981–2001 (percent)



**c. In high-income countries, the share of high-technology exports has risen rapidly**

Share of exports by sector, high-income countries, 1981–2001 (percent)

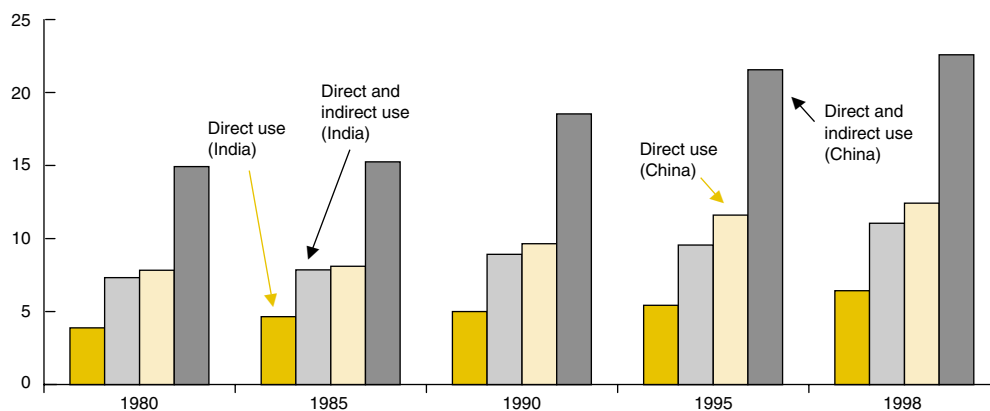


Source: COMTRADE.

tural commodities and can create important productivity gains through learning-by-doing and the expansion of productive firms.

The move to global production sharing heightens the importance of timely, efficient, and low-cost transportation. Even quite small differences in transport costs and the timeliness of transportation services can have quite dramatic consequences for national incomes. Hummels (2001) estimates that an increase of one day in the time taken to deliver a good is equivalent to an increase of 0.8 percent in the cost, not just of transportation, but of the good itself. Redding and Venables (2001) conclude that differences in transport costs in a world of global production sharing may account for a large proportion of the observed differences in incomes among countries. In this mode of production, countries must pay transport costs to obtain their inputs and to consign their outputs. If value added is a small share of output value, as is frequently the case, then transport costs have enormous leverage on the residual returns available to pay workers and owners of capital. If value added is 20 percent of the gross output value in the absence of trade costs, for example, then a transport cost of 10 percent of output to ship products out, and an equal cost to bring in components, could wipe out returns to productive factors.

To gain an idea of the potential importance of global production sharing in developing countries, we have calculated indexes of vertical specialization of the type developed by Hummels, Ishii, and Yi (2001) for several developing countries. These indexes expose the share of imported inputs embodied in each unit of goods exported—either directly or after indirect use of imported inputs is taken into account. Although imperfect—they do not allow for differences between export- and domestically oriented sectors in their use of intermediate inputs—these measures provide a structured assessment of the extent and changes in production sharing.<sup>3</sup> Two sets of results are presented in figure 2.4. The lower bars estimate the share of export value accounted for by direct use of imported intermediates, whereas the

**Figure 2.4 Global production sharing is increasingly important for China and India***Share of imported inputs in a unit of exports, India, 1980–1998 (percent)*

Source: World Bank staff.

higher bars represent direct plus indirect use of imported intermediates.

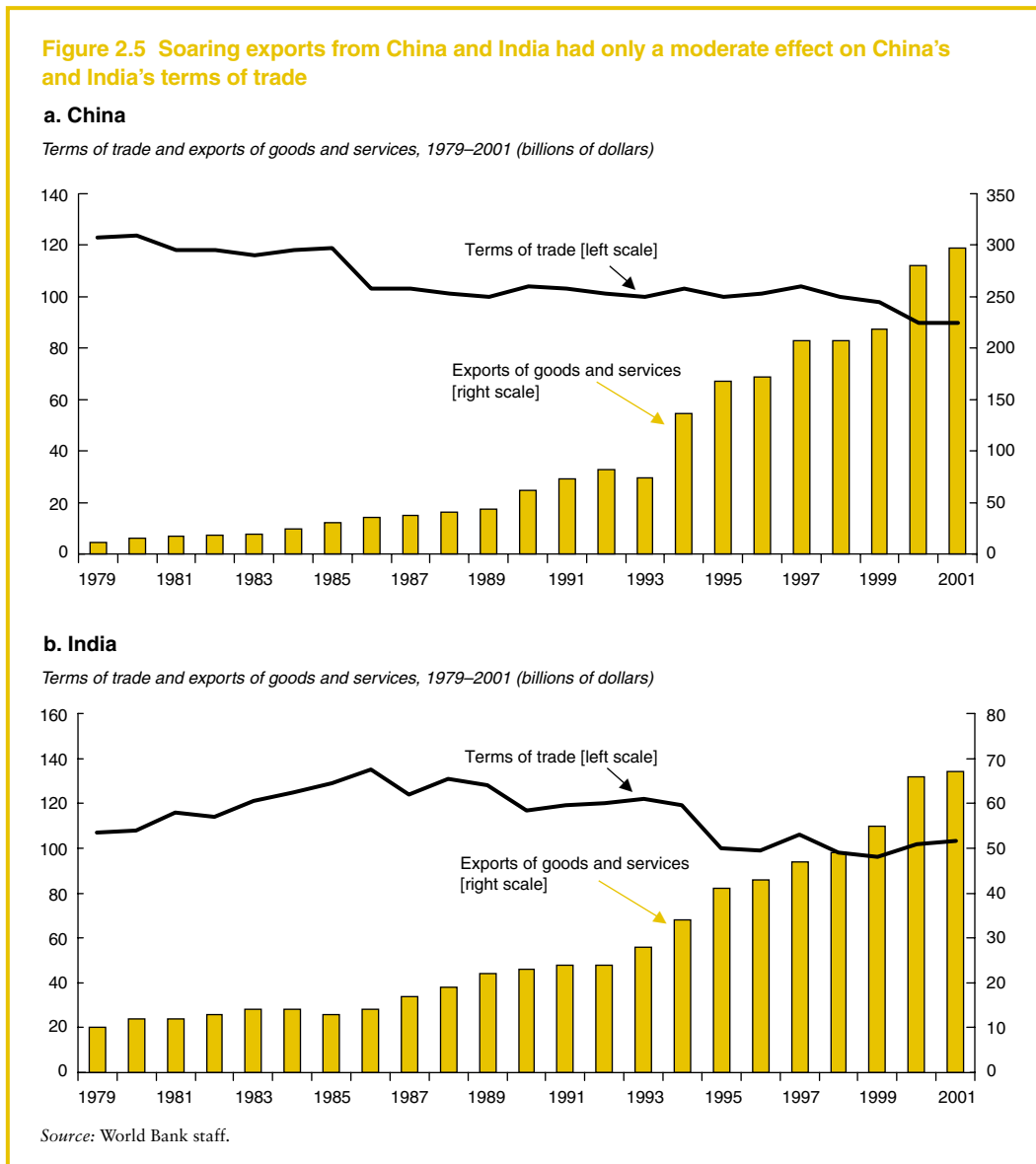
The importance of global production sharing in India has more than doubled since 1980. In China, even though production sharing began from a considerably higher level than in India, it almost doubled over the period, to 22 percent. Even so, the estimates understate the importance of global production sharing in China, where policy has strongly favored the use of imported inputs in labor-intensive production of manufactures (Ianchovichina 2003), and where exports based on the processing of imported intermediates account for about half of total exports. However, the graph highlights the substantial increase in the importance of the phenomenon in China over the period—particularly since 1987, when duty-free access was extended to a wide range of imported intermediates used in the production of exports.

To take several other examples, Singapore's economy is much more integrated into the world economy than is middle-income Colombia. Singapore's total vertical specialization index hovered around 60 percent of the value of its exports over the past two decades, with a direct specialization index of more than 50 percent. By contrast, in Colombia, the total

index rose from 6.4 to 7.9 percent—not much more than a tenth of Singapore's. Although Colombia's larger economy would be expected to show less vertical specialization than Singapore's, the fact that it is so much less integrated than China's or India's suggests that constraints on transport and communications may be inhibiting Colombia's participation in global production sharing.<sup>4</sup>

China and India have tightened their integration with the world economy since 1980. Their experience suggests that successful exporters of manufactures can avoid the problems of declining terms of trade that preoccupied many thinkers in the 1950s and 1960s (Bloch and Sapsford 2000) and that remain implicit in many current models of world trade and growth. A striking feature of the expansion of exports from developing countries is that the terms of trade of countries whose exports have risen extremely rapidly have *not* deteriorated to the extent that one might predict using conventional economic models. Most of the models used by economists would predict that large increases in exports would be followed by substantial declines in export prices, as countries exported more and more of the same products.

Declines in the terms of trade of China, India, and other high-export-growth countries,



however, have been much more modest than would be expected given their high rates of export expansion. China's export revenues grew almost thirty-fold (3,000 percent) in value terms between 1979 and 2001 (figure 2.5). Over the same period, the ratio of China's export prices to import prices—its terms of trade—declined by nearly 30 percent. Clearly, China's gains in export value would have been

considerably greater had the terms of trade not deteriorated in this way, but the gains in growth of export value, and its purchasing power, were clearly enormous. While reaping immense benefits from its burgeoning export trade, China essentially shared some of those benefits with its trading partners in the form of improvements in *their* terms of trade. India's exports grew sevenfold during the same period,

while its terms of trade deteriorated by perhaps 4 percent.

A key to the apparent discrepancy between the predictions of economic models and actual outcomes is that export growth in some developing countries appears to have been accompanied by vigorous expansion in the range of products exported and in the markets in which those exports were sold (Hummels and Klenow 2002; Kehoe and Ruhl 2002; Evenett and Venables 2003), and by increases in the quality of the goods exported (Schott 2002). These important developments mean that policymakers in developing countries can worry much less about declining terms of trade if they can focus on reform of policies—both at the border and behind it—and on competing successfully in new products and markets.

Clearly, the dramatic changes seen in developing countries' export patterns can be expected to have a major impact on their interests in the current WTO negotiations. In the early 1980s, before the Uruguay Round, developing countries relied heavily on exports of resource-based products and had relatively limited interest exports of manufactured products, which until then had been the focus of WTO negotiations on market access. Since that time, however, the interests of the middle-income countries and the many poor countries that now export high-technology products have broadened dramatically. Further, given the dramatic increase in vertical specialization in production, all countries are much more dependent on the availability of the services needed to support decentralized production—giving developing countries a much greater stake in negotiations under the General Agreement on Trade in Services (GATS).

### Behind the patterns: Economic and policy determinants

**W**hat caused the transformation in world trade patterns described in the previous section? Did exports grow “passively” in response to expansion in world markets? Or did the observed growth depend on improve-

ments in competitiveness resulting from reforms in policies, or on growth in investment and productivity?

Differences between export growth in a given region and average world growth rates can be ascribed to two key factors: (1) growth in world demand for the region's products and (2) increases in competitiveness because of lower output prices, improvements in quality, or shifts in the pattern of exports to products in greater demand.

From 1981 to 1991, the developing countries of East Asia experienced export growth of 232 percent, compared with the global average growth rate of 115 percent. The demand for the products exported from East Asia grew slightly faster than the world average, at 124 percent, but East Asian export performance was outstanding primarily because of an increase in competitiveness that raised East Asia's exports by 109 percentage points relative to overall market growth. Europe and Central Asia lost competitiveness over the same period, causing their exports to grow by 94 percent relative to growth in the market for their exports of 124 percent and to world export growth of 115 percent. The commodity-dependent exporters of the Middle East and North Africa suffered heavily from contractions in the demand for the products they produced; the world market for their exports shrank by 21 percent. In addition, they lost competitiveness within their own product markets, with the result that their exports fell by 24 percent over the period. By contrast, the product mix of South Asian exporters was helpful; the markets for their products grew by 129 percent over the period. South Asian countries also experienced substantial improvements in competitiveness, which accounted for an additional 70 percentage points of export growth, bringing their total export growth to just under 200 percent. The market for the products exported by Latin America and the Caribbean expanded by 54 percent—less than half the average for the world as a whole—but these countries managed to gain an additional 21 percent increase in their exports through increases in competitiveness.

**Table 2.2** Developing countries' exports became more competitive in the 1990s*Source of export growth relative to world average growth, 1981–2001 (percent)*

	1981–91			1991–2001		
	Total	Demand	Competitiveness	Total	Demand	Competitiveness
Industrial countries	133	148	–16	48	70	–22
Europe and Central Asia	94	122	–28	255	48	206
East Asia and Pacific	232	124	109	139	75	64
Latin America and Caribbean	75	54	21	137	50	87
Middle East and North Africa	–24	–21	–3	60	58	3
South Asia	199	129	70	113	36	77
Sub-Saharan Africa	10	20	–10	68	35	33
World	115	—	—	68	—	—

*Source:* COMTRADE.

For 1991 to 2001, export growth in all developing country regions outstripped that of the industrial countries (table 2.2). While high in East Asia and the Pacific, it was even higher in the developing countries of Europe and Central Asia, where market share responded to a dramatic improvement in competitiveness.<sup>5</sup> Of the developing country regions, only East Asia and the Pacific benefited from above-average growth in demand. But all regions except the Middle East and North Africa grew at or above world average growth rates through increases in competitiveness.

#### *What explains improvements in competitiveness?*

Changes in production factors used by developing countries probably improved their competitiveness. One of the most misunderstood predictions of economics is that changes in the factors employed in open economies will change the mix of goods produced and exported, rather than the prices of the input factors. Increases in the amount of capital per worker in an open economy can, for instance, be expected to increase the share of output from capital-intensive sectors, rather than depress the return on capital. Similarly, increases in the amount of education per worker can be expected to increase the share of output from knowledge-intensive activities, rather than declines in returns to education and increases in unemployment of skilled workers. In this respect, open economies are much better placed

than closed economies, where growth in any factor can be expected to depress its price, as the domestic demand for the goods in which it is used intensively becomes saturated. Of course, world markets, too, are finite, and rapid increases in supply can lead to declines in world prices—as appears to have occurred in coffee markets in recent years. But world markets are much larger than those of individual countries. The problem of saturation is much less likely to become serious for trade in manufactures, because there is much more two-way trade among developing countries in these goods. For this reason, Martin (1993) found that each developing country was likely to be better off if all developing countries benefited from increases in manufacturing productivity than if it alone benefited.

Other likely influences on the structure of outputs and exports include changes in trade and investment policies; changes in the market opportunities facing developing countries; and the development of new market opportunities in which developing countries already have, or can develop, a comparative advantage. Clearly, these influences are related—increases in market opportunities and improvements in trade and investment policies are likely to stimulate investment in physical and human capital.

Increases in the importance of foreign direct investment are another contributing factor to the changes in developing countries' participation in international trade. As documented in World Bank (2002), foreign direct

**Table 2.3 Investment in people and in capital grew rapidly***Percent annual changes in factor endowments, 1960–90*

	Capital per worker	Education per worker	Secondary education per worker	Tertiary education per worker
Industrial	3.7	0.3	2.2	4.9
Developing				
East Asia and Pacific	5.1	4.2	9.2	3.4
Latin America and Caribbean	2.4	2.0	5.3	6.7
Middle East and North Africa	3.4	2.3	1.9	6.3
South Asia	3.2	3.3	4.3	6.4
Sub-Saharan Africa	2.1	4.2	9.7	12.6

Source: Nehru and Dhareshwar (1993); Nehru, Swanson, and Dubey (1995).

investment grew dramatically during the 1990s. Not only did it bring capital to developing countries, augmenting the total supply of capital per worker, but it brought know-how, and connections with other elements in the network of global production sharing.

One likely contributor to the observed change in the mix of developing-country exports is the rising amount of capital per worker available in some developing economies. In East Asian economies, the annual growth rates of capital per worker have been almost one and a half times those in the advanced industrial countries (Nehru and Dhareshwar 1993; Nehru, Swanson and Dubey 1995). In other regions, the average rate of growth in capital per worker has been lower than in the industrial countries, even though some developing countries outside East Asia have rates of saving and investment that match those found in East Asia. Increases in the amount of secondary and tertiary education per worker have been much higher for most developing country regions than in the industrialized world—albeit frequently from a low level.

To the extent that these resources have been effectively employed, this deepening of financial and human capital per worker can be expected to encourage a shift away from labor-intensive activities toward activities that use more capital and skills. Broad estimates of the growth rates of financial and educational capital are presented in table 2.3 for each developing country region. The first column mea-

sures the growth of capital per worker, while subsequent columns measure years of education and average years of secondary and tertiary education per worker. While these are only crude measures of the growth of these inputs per worker, they do represent an indication of the efforts that have been made in developing countries to increase the capital and skills available per worker.

The relationship between accumulation of factors of production and the export mix is likely to be quite complex, with countries first expanding their output of labor-intensive manufactures and then, beyond a certain level of capital and skills, moving into a different range of products (Schott 2003). Further, questions have arisen regarding how effectively many countries have been able to use the additional capital and human skills (Pritchett 2000, 2001). It seems highly likely, however, that the observed rapid increases in capital and skills per worker have been important in many cases of successful development and that they are vital to long-term progress. Without large increases in the availability of skilled labor, it would be difficult to explain the rapid increases in the exports of high-technology products from developing countries—especially from the low-income countries. Even where high-technology exports involve routine operations performed on sophisticated imported inputs, advanced organizational and technical skills are needed to ensure consistent and reliable supplies of high-quality exports.

*Lowering protection throughout the developing world created new opportunities—*

Since the mid-1980s, the large-scale liberalization of trade policies in developing countries has widened market access and lowered the implicit taxation on exports that import tariffs entail. Average tariffs in developing countries fell to around 12 percent by 2000—about one-third of their level in 1983. This large reduction was accompanied by even larger reductions in nontariff barriers and exchange-rate overvaluation—both of which strongly exacerbated the protectionist effects of tariffs in the 1980s (World Bank 2000).

Absolute reductions in protection were even larger in individual countries. India, for example, reduced its average tariff from 100 percent in 1986 to 32 percent in 1999. While some reductions in protection have occurred in industrial countries—through tariff reductions and through abolition of nontariff barriers—the changes have been quite small relative to those in developing countries. Between 1980 and 2001, the average tariff in industrial countries fell from 9.8 to 3.7 percent—a significant fall, but much smaller than that observed in developing countries, where the average tariff fell from 30 percent to 12.7 percent over the same period.

These figures, and some standard assumptions, allow us to divide up the contribution of trade reform to developing country export growth into a component due to countries' own liberalization and one due to improved market access and export demand. The tariff reductions in developing countries reduced the price of imports to domestic consumers by an average of 12 percent, while import prices in the industrial countries were reduced by 3.4 percent. The increase in the demand for exports from developing countries is determined by the reductions in import prices in their markets—both in industrial countries and in other developing countries. Over the period from 1986 to 2001, the industrial countries absorbed two-thirds, on average, of developing-country exports. Therefore, we estimate the im-

provement in market access by weighting the price change due to tariff cuts in industrial countries by two-thirds and the reduction in developing countries by one-third, yielding an average price reduction for developing country exports of 6.4 percent, almost exactly half the stimulus that comes from developing countries' own exports. This suggests that, in aggregate, *developing countries' own liberalization* has been the primary channel through which trade reform has expanded developing countries' export growth. Because reform in any one developing country benefits other developing countries as well, the total contribution of developing country reform can be captured by combining the "own-liberalization" effect with the market-access benefits provided by other developing countries. When we do this, we find that 88 percent of the stimulus to developing-country exports following tariff liberalization derives from developing-country liberalization.

Such large reductions in protection can be expected to have marked effects on the pattern of exports, as well as their level. Protection raises the costs of all domestic industries by increasing the costs of their inputs—including both intermediate inputs and factors.<sup>6</sup> However, this effect varies among sectors. Typically, manufactures are much more vulnerable to the adverse effects of protection because they are more dependent than agricultural and resource-based activities on imported intermediate inputs. Further, this vulnerability has grown over time as production has moved from regionally integrated production—the original approach taken by firms such as Ford and the large integrated steel mills in an earlier era of industrialization—to internationally integrated production networks involving many firms and countries.

Protection regimes are often erected to promote industrialization without thorough consideration of their impact on the production of manufactured goods and the structure of exports. Tariffs and other trade barriers affect exports primarily by raising the costs of production inputs. Because protection policies rarely improve the returns small developing

countries can obtain from sales of their exports, their impact on exports can be judged by considering their effect on the costs of intermediate inputs—and hence on the returns available for payment to factors. This can be done simply by applying the concept of the effective rate of protection to measure the effect of protection on the value added in export production. While this approach underestimates the adverse effects of protection by ignoring indirect cost-increasing effects, it provides a simple and transparent indication of the direct effects.

*—by reducing the implicit taxes on exports*

The burden on exports of tariffs on intermediate input costs<sup>7</sup> is illustrated by the cases of Brazil, China, India, and Malawi in 1986, when estimated rates of average protection were first available for each country, and 1997, following large reductions in protection (table 2.4). The impact of protection on exports differs considerably from country to country, but two key features are evident. First, agricultural processing and manufacturing (whether labor or capital intensive) for export are much more heavily taxed than are agricultural and resource commodities. Second, the rate of taxation has generally declined substantially since the mid-1980s, while remaining substantial for industrial products.

At the levels of protection prevailing in 1986, export activities in agricultural process-

ing and in capital- or labor-intensive manufactures were taxed at essentially prohibitive levels. In India, the taxes directly imposed by protection on agricultural processing and capital-intensive manufacturing averaged more than 60 percent. (Nontariff measures, domestic licensing requirements, and exchange-rate distortions, if computed, would have further increased the effective tax.) In Brazil, the estimated impact of tariffs on returns from exporting manufactured products and processed agricultural goods was even more sharply negative—around 70 percent. In China, the direct impacts of protection appear to have been on the same order of magnitude, with agricultural processing facing taxes of more than 70 percent and labor-intensive manufactures close to 60 percent. These problems were compounded by strong policy-driven obstacles to the expansion of state-run firms, which eventually were mitigated by the emergence of an entirely new class of firms—the township and village enterprises—not subject to the constraints of the state-run firms. The export tax rates in Malawi appear to have been much lower than in China and India, even before the reforms, perhaps because such a small and trade-dependent economy simply could not maintain the types of trade barriers found in the bigger countries.

Although a very few agricultural processing and manufacturing activities that depended less on intermediate inputs might have been able to survive at average tariff rates of 100 percent (as in India), it seems highly likely that

**Table 2.4 Tariffs hurt exports—but less so in the 1990s than in the 1980s**

*Cost penalties on exports associated with import tariffs (percent)*

	Brazil		China		India		Malawi	
	1986	1997	1986	1997	1986	1997	1986	1997
Agriculture	-43	-5	-28	-15	-14	-5	-9	-7
Agricultural processing	-83	-28	-72	-54	-64	-39	-20	-16
Resources	-45	-6	-14	-7	-9	-3	-6	-5
Labor-intensive manufacturing	-72	-17	-54	-35	-45	-23	-18	-15
Capital-intensive manufacturing	-79	-22	-46	-28	-60	-35	-11	-9
Services	-31	-3	-26	-14	-16	-6	-5	-4

*Note:* Effective rate of protection applying to exporters is the proportional change in returns to value-adding factors resulting from tariff protection.

*Source:* World Bank data.

reductions in tariffs—and nontariff barriers—of the type observed around the world between 1986 and 2001 (World Bank 2000) must have contributed to the great expansion of developing countries' manufacturing exports.

Reductions in average tariffs were complemented by the introduction of duty-exemption or drawback arrangements under which export producers obtained access to duty-free inputs for use in export production. These arrangements offer one way, legal under GATT, to reduce the burdens imposed by import duties. Some exporters, such as China, have used them successfully to develop labor-intensive exports (Ianchovichina 2003; Ianchovichina and Martin 2003).

However, such policies are an imperfect solution to the problems created by protection. Whether introduced throughout the economy or in specific free-trade zones, such arrangements are administratively demanding. In many cases, particularly in Africa, they have failed to operate successfully (Madani 1999). Further, they tend to encourage firms to concentrate on production activities that add a small amount of value to imported inputs, rather than on activities more closely integrated with domestic production. Ianchovichina (2003) found that exporting activities had become much more import-intensive than other industries as a result of the incentives created by duty exemptions. Since one of the key lessons of the new economic geography is that there may be substantial gains from activities that encourage the development of backward—as well as forward—linkages (Amiti 2003), incentives toward shallow processing activities may cause highly protected economies to miss many opportunities for growth. Reductions in overall tariffs are a much better alternative than duty exemption. Not only do they remove the incentive for unnecessarily shallow specialization, but they also reduce the price of nontraded goods and factor inputs (Corden 1997), and further increase the stimulus to production for export.

Another problem with relying on duty exemptions rather than relatively low and uniform tariff rates is that their introduction re-

duces the pressure for more general reductions in protection, since exporters—a potentially powerful source of pressure for reductions in tariffs—no longer suffer the direct impact of protection (Cadot, de Melo, and Olarreaga 2002).

Redressment of behind-the-border costs imposed by inadequate infrastructure and excessive, inappropriate regulation has also helped developing-country exports (Dollar, Hallward-Driemeier, and Mengistae 2003). Other behind-the-border problems include those associated with clearance through customs—excessive or arbitrary inspections or requests for documentation, demands for bribes or other informal payments, and so on. Several of these problems are dealt with in greater detail in chapters 5 and 6.

The dramatic changes in the nature of their participation in world trade have greatly changed the incentives of developing countries to participate in the world trading system. When developing countries exported goods—cocoa, rubber, coffee—that did not compete directly with those produced in developed countries, they had little incentive to participate in politically difficult exchanges of market-access concessions that characterized the multilateral trading system. At the same time, the effects on exports of their protection regimes were relatively subdued, since their primary exports—as we have seen—required fewer intermediate inputs. The shift to manufactures increases the importance of access to markets in which there is likely to be strong domestic competition. And the prices of export-oriented manufactures are, of course, very sensitive to the costs of intermediate inputs, since exporters are unable to pass these costs on without pricing themselves out of the market.

### **Market access for development: The agenda**

**R**eciprocal exchanges of tariff reductions, the key element of all previous WTO negotiations, will be a critical element in the current negotiations. Tariffs, however, are not the

only issue. Two additional topics central to market access for developing countries are:

- The phasing out of textile and clothing quotas, and
- Frequent recourse to antidumping measures.

*Phasing out quotas on textiles and clothing is crucial*

The commitment to phase out quotas on textiles and clothing was made in 1994 as part of the Uruguay Round agreement. That commitment took the form of an Agreement on Textiles and Clothing, under which quotas were to be phased out in three tranches. Products accounting for 16 percent of 1990 imports were to return to GATT disciplines immediately, with an additional 17 percent returning in 1998, and 18 percent in 2002. However, because the imports used as the baseline included products typically traded only by the industrialized countries, importing countries were able to meet their commitments without abolishing any significant quotas until the third phase of integration, beginning January 1, 2002. The delay in the abolition of quotas has meant that perhaps 85 percent of the effective quotas against developing countries remain in effect—including the most restrictive. Unless the industrial countries go back on their solemn commitments, often reaffirmed, all of the remaining quotas will be abolished on January 1, 2005.

It is difficult to predict the impact of quota abolition, since the textile industry is so heavily distorted by quota and tariff protection in both industrial and developing countries. What is clear is that some countries, such as China and India, with strong underlying comparative advantage in the production of these goods, have had their exports sharply restricted by the presence of the quotas. Other suppliers, much less severely restricted by quotas and/or tariffs, have been able to expand their exports considerably. This group includes three distinct categories:

- Exporters such as Hong Kong, China; Taiwan, China; and the Republic of

Korea, for which clothing and textiles are industries that likely will be allowed to decline and “sunset”

- Exporters such as Mauritius and Cambodia, whose exports have been less tightly restricted by quotas and which have had preferential tariff access for at least some commodities
- Countries such as Mexico and Turkey that face neither quota constraints nor tariff barriers in their major markets.

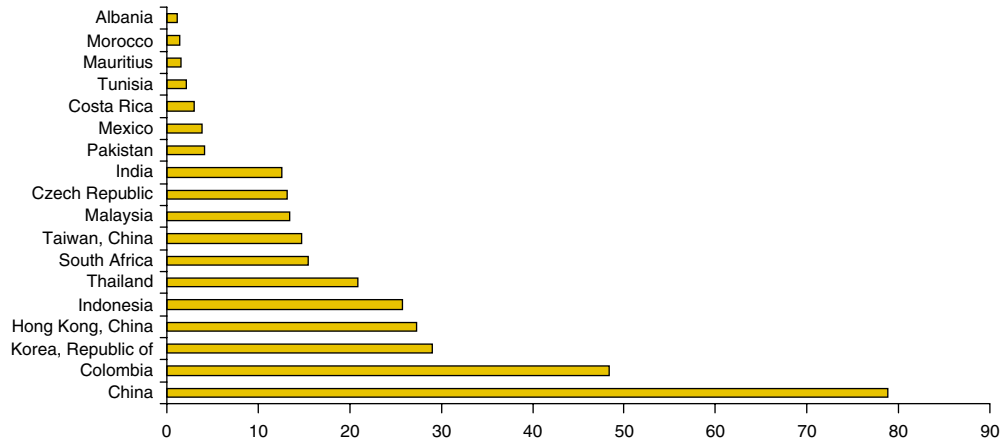
Abolition of quotas will remove much of the incentive for continued production in the first group of exporting countries and reduce the margin of preference enjoyed by the free-access countries. (Their preference will drop from the margin provided by tariffs plus the export-tax equivalent of other countries’ quotas, to just the margin provided by tariffs.)

Results provided by simulation models suggest that countries such as China and India, which have relatively low production costs, are likely to make substantial gains in market share following abolition of the quotas (Yang, Martin, and Yanagishima 1997; François and Spinanger 2002). These results are conditioned on the assumptions of the models, and particularly on differentials in the extent to which the quotas restrict the exports of different countries. While some countries, such as China, provide high-quality data on the extent to which the quotas restrict their exports, data for many other exporters are much less widely available. Another indicator of the underlying competitiveness of individual exporters is the share of their exports shipped to nonquota markets. The more efficient the supplier and the more restrictive the quotas it faces, the more of its exports it will tend to ship to less lucrative nonquota markets (figure 2.6).

While the share of clothing exports (using WTO categories) exported to nonquota markets is a crude index of the extent to which exports are restricted by quotas, some interesting patterns appear. The first is that some countries—Albania, Costa Rica, Mexico, Morocco, Pakistan, and Tunisia—directed almost all of

**Figure 2.6 Many developing countries face an adjustment when quotas are lifted**

Share of clothing exports to nonquota markets by developing-country exporters, 2001 (percent)



Source: COMTRADE.

their clothing exports to the quota-restricted countries, suggesting that their quotas were large enough to let them focus on these markets, or that their competitiveness did not allow them to export to less-lucrative nonquota markets. Another group of countries, such as the Czech Republic, India, Indonesia, and South Africa, exported more than 10 percent of their exports to nonquota markets—suggesting both restrictive quotas and an ability to compete at currently depressed world prices for clothing. Finally, Colombia and China exported 50 and 79 percent, respectively, of their exports to nonquota markets. Countries in this category appear likely to be highly restricted and to have strong potential for expanding their exports following abolition of the quotas.

The abolition of some restrictive quotas in January 2002 provides another source of insight into the implications of quota abolition. Because the abolished quotas covered only a small fraction of total textile and clothing trade, one would expect a disproportionate response to their disappearance, since additional resources waiting to be channeled into textiles and clothing could, for the moment, be redirected only into the products liberalized. In fact, a key feature of the adjustment to abolition of

these quotas has been rapid growth in exports of these products, particularly from China.

Whether current supplying countries maintain or lose market share following quota abolition will depend on whether they undertake reforms in advance to maintain their competitiveness. The current system contains, for many countries, *disincentives* for policy reforms that lower costs, improve efficiency, and increase supply. Increases in the supply of exports from a country that has filled its quotas must be shipped to a limited range of markets not constrained by quotas, where prices are likely to decline if significant additional quantities are exported (Elbehri, Hertel, and Martin 2003). Once the quotas are abolished in the world's largest markets, however, the gains from reforms that reduce costs are likely to be much greater. If countries use the greater competition that follows the abolition of quotas as a stimulus for reforms that increase productivity, they stand to gain much more than they could have hoped to gain in the past. Bhardwaj, Kathuria, and Martin (2001) point to areas in India, for example, where such reforms are needed to allow the industry to become more competitive. Needed reforms include: eliminating policies that create disincentives for

**Table 2.5 Quota abolition in China will move resources from other activities to textiles and clothing**

*Percent change in export volumes*

Sector	Anticipated change
Apparel	125.7
Automobiles and parts	-22.8
Cotton	-8.6
Electronics	-10.6
Leather and shoes	-5.0
Metal products	-11.9
Textiles	41.9
Other manufactures	-14.1

*Source:* Staff results from model of Ianchovichina and Martin (2001, 2003).

factory production, eliminating reservation of particular activities for handloom production, and improving duty exemption arrangements. The specific needs for policy reform will, of course, vary across countries.

How will the phase-out of quotas on textiles and clothing affect other sectors? By inducing highly competitive producers to shift from other activities into textiles and clothing, the abolition of quotas is likely to reduce supplies of other goods, creating opportunities for other exporters. The likely response of Chinese industry, for example, to the abolition of current quotas on textiles and clothing is a shift in resources away from other goods (table 2.5). The specific results presented in table 2.5, produced using a model by Ianchovichina and Martin (2001, 2003), should not be seen as predictions of outcomes, however, since the phase-in of China's liberalization commitments under its WTO accession, and the continuing high rates of investment in physical and human capital in China, tend to stimulate the output of many activities, including some of those mentioned in the table.

But the changes anticipated by the model do suggest the importance of examining the disincentives for production of goods other than textiles and clothing. If a country has, for example, a duty-exemption arrangement covering the needs of the textile and clothing sectors and has not developed exports of other

manufactured goods, it is more likely to suffer from increased competition following abolition of the textile and clothing quotas than if it had a more balanced export pattern. Thus, policy should not only seek to improve productivity in the textiles and garment sector, but also to improve productivity in other sectors, where competition may be less intense following abolition of the quotas.

#### *How tariffs are reduced will affect the development promise of Doha*

Given the mercantilist nature of international trade negotiations, developing-country policy-makers contemplating the Doha Development Agenda will want to identify the export sectors in which they face the most significant trade barriers. The average tariff barriers facing exporters from each region are shown in table 2.6. Because separate negotiations on market access are being conducted for agricultural goods and nonagricultural goods, the table is divided into two sections.

Tariffs imposed by the industrial countries on imports from developing countries are typically much higher than those they levy on other industrial countries. In agriculture, the industrial countries impose an average 15 percent tariff on imports from other industrial countries, whereas the rates on imports from developing countries range from 20 percent (Latin America) to 35 percent (Europe and Central Asia). Outside of agriculture, the discrepancy is even more striking. Tariffs on imports from other industrial countries average 1 percent, while those from developing countries face tariff averages ranging from 2.1 percent (Latin America) to 8.1 percent (South Asia).

The differences in tariff averages reflect in part the presence of major trading blocs such as the European Union and the North American Free Trade Agreement (NAFTA), which include key industrial-country trade partners. In part, also, they reflect differences in the pattern of exports and the broad profile of tariffs. In the GATT trade rounds during which the greatest strides toward liberalization were made (the Kennedy and Tokyo Rounds of the

**Table 2.6 Industrial countries levy higher tariffs on imports from developing countries than from other industrial countries—and some regions have high tariff walls***Protection rates facing exporters in each region, 1997 (percent)*

Exporting Region	Importing Region						Industrial
	East Asia	Europe and Central Asia	Latin America	Middle East	South Asia	Sub-Saharan Africa	
<b>Agriculture</b>							
East Asia	31.0	30.3	15.5	45.3	38.4	19.0	30.5
Europe and Central Asia	24.2	36.4	23.8	55.3	34.2	12.7	35.1
Latin America and Caribbean	42.1	36.0	14.8	50.3	29.7	24.7	20.4
Middle East	23.0	43.4	14.9	76.4	31.8	18.9	23.4
South Asia	16.6	34.6	13.7	41.1	27.7	11.0	25.8
Sub-Saharan Africa	26.7	20.3	14.4	39.1	30.9	33.6	23.6
Industrial	33.3	43.7	20.1	65.4	16.4	24.0	15.3
<b>Nonagriculture</b>							
East Asia	8.2	13.8	15.1	12.2	28.1	14.5	5.1
Europe and Central Asia	6.4	6.4	11.4	8.6	25.8	12.8	5.9
Latin America and Caribbean	4.3	6.7	15.4	8.9	19.4	11.9	2.1
Middle East	5.4	11.5	8.8	11.4	33.6	11.7	6.0
South Asia	7.1	11.0	13.6	10.2	19.0	17.4	8.1
Sub-Saharan Africa	4.4	6.1	11.7	6.1	27.6	20.6	4.2
Industrial	7.4	9.6	8.5	10.4	25.2	12.2	1.0

Source: Weighted averages calculated using GTAP Version 5 Database ([www.gtap.org](http://www.gtap.org)). Most-favored-nation rate except for major free-trade blocs such as the European Union and the North American Free Trade Agreement. Does not include other preference schemes.

1960s and 1970s), developing countries were not active participants in the trading of reciprocal market-access concessions. Under the circumstances, it was more likely that their products would be omitted from the sharp reductions in tariffs made in those rounds.<sup>8</sup>

A reasonable objection to this interpretation is that some developing countries face substantially lower tariff rates than are presented in table 2.6 and may even benefit from access to industrial country markets at prices above world market levels. This is true for many countries and groups of countries. The countries of the African, Caribbean, and Pacific group enjoy preferences on many of their exports to the European Union. The least-developed countries receive preferences under the Union's Everything But Arms Agreement. Other countries receive preferences as members of Euro-Mediterranean agreements, the U.S.–Caribbean Basin Initiative, the U.S Africa Growth and Opportunity Act, and preferences provided to least developed countries and

other developing countries under the Generalized System of Preferences.

Recent research suggests, however, that conditions such as rule-of-origin requirements reduce the benefits provided by such agreements substantially below the gains implied by the nominal preferences (Brenton 2003). Furthermore, many of these countries suffer from restrictions on their access to markets for a wide range of other products. And other countries with a large fraction of the world's poor receive no benefit at all from these preferences—in fact they are harmed by diversion of their exports to preference-receiving countries. China and India alone contain well over 500 million people living on \$1 per day or less (World Bank 2003). These countries receive only minimal benefit from these preferential arrangements.

Developing countries tend to levy higher tariffs on imports from other developing countries than do the industrial countries (table 2.7). This is particularly striking in the case of agricultural products, where the tariffs levied

**Table 2.7 Developing countries pay large amounts in tariffs to their neighbors**

The share of the burden on each region's exports imposed by region of destination (percentage of total barriers faced by exporting region)

Exporting Region	Importing Region						Industrial	Total
	East Asia	Europe and Central Asia	Latin America	Middle East	South Asia	Sub-Saharan Africa		
<b>Agriculture</b>								
East Asia	32.8	0.7	0.6	5.6	4.7	2.1	53.6	100
Europe and Central Asia	1.7	19.8	0.6	13.9	0.4	1.4	62.3	100
Latin America (LAC) and Caribbean	13.7	1.6	10.8	14.8	1.4	1.9	55.6	100
Middle East and North Africa	2.1	3.0	0.6	44.4	1.6	1.0	47.3	100
South Asia	12.6	2.0	0.7	28.2	7.5	1.8	47.4	100
Sub-Saharan Africa	7.1	2.3	0.4	4.8	4.0	10.0	71.4	100
Industrial	16.1	3.2	5.0	19.1	0.6	2.7	53.3	100
<b>Nonagriculture</b>								
East Asia	37.4	1.5	6.3	4.8	5.9	4.2	39.9	100
Europe and Central Asia	2.8	13.5	2.1	5.8	2.0	2.9	71.0	100
Latin America and Caribbean	3.7	0.3	63.8	1.7	1.2	1.5	27.7	100
Middle East and North Africa	8.2	1.8	2.4	12.4	28.6	3.1	43.4	100
South Asia	8.8	0.6	3.1	9.7	6.8	7.9	63.0	100
Sub-Saharan Africa	9.0	0.7	4.2	1.7	7.7	40.4	36.3	100
Industrial	31.1	6.8	15.3	14.3	6.5	6.1	19.9	100

Source: Weighted averages calculated using GTAP Version 5 Database ([www.gtap.org](http://www.gtap.org)). Most-favored-nation rate except for major free-trade blocs such as the European Union and the North American Free Trade Agreement.

on developing-country exports are frequently twice as high as the already high rates levied by the industrial countries. For nonagricultural products, the differences are even greater in proportional terms. The tariffs imposed by South Asia on imports from developing countries, for instance, are frequently five times as high as the rates imposed by industrial countries. It is also notable that countries levy high tariffs on imports from other countries in their region, particularly in Sub-Saharan Africa, where the average tariff levied is higher on African products than on imports from any other region.

How important are the effects of the tariff rates discussed above? The answer depends on the size of the trade volumes to which they apply. One way to get a rough indication of the importance of tariffs in particular markets is to examine the value of the duty charged on exports to that market. This measure effectively weights each tariff rate by the value of the trade to which it applies. Although clearly flawed in

cases where trade flows are strongly inhibited by high tariff rates or where much trade takes place at preferential rates, the measure does provide at least a crude adjustment for the relative importance of different markets.<sup>9</sup>

In agriculture, all developing regions face their most significant barriers in the industrial countries. Although the burden is greatest in Sub-Saharan Africa, where over 70 percent of the barriers faced are imposed by the industrial countries, the industrial countries account for more than 50 percent of the barriers facing all developing regions except South Asia and the Middle East and North Africa. Even there, industrial-country barriers are substantial, accounting for almost half of the total direct burden imposed on their exports. In only one region, the Middle East and North Africa—where barriers imposed by other countries of the region loom particularly large—do the barriers erected by the developing world approach the effect of those imposed by developed countries. After the devel-

oped countries, however, the most important barriers are often found in neighboring countries, as in the case of East Asia, where neighbors' barriers account for almost a third of the barriers facing exporters, and the Middle East, where they account for close to 50 percent.

In nonagricultural trade, industrial-country barriers are clearly much more important than would be implied by the relatively low tariff rates shown in table 2.7. Their importance to exporters, however, varies substantially by region. For developing countries in Europe and Central Asia, they are particularly important, accounting for over 70 percent of total levies on exports. Industrial-country barriers are also particularly important in South Asia, where they account for close to two-thirds of the tariff burden. By contrast, the industrial-country share is closer to 40 percent in East Asia, the Middle East and North Africa, and Sub-Saharan Africa, and under 30 percent in Latin America and the Caribbean. For the industrial countries themselves, barriers in other industrial countries are now relatively small, at under 20 percent of the total, a fact that undoubtedly contributes to developed countries' interest in securing trade liberalization in developing countries. These generalizations notwithstanding, the differences mask country-level patterns, obliging policymakers in each country to do their own analysis.

*Use of antidumping actions to generate protection has reached an advanced stage*

GATT and the WTO acknowledge the sovereign rights of member countries to impose certain new trade restrictions or to replace old ones. A number of these are "exceptions" to the general intention of providing an open international trading system, such as import restrictions that relate to national security. Others are part of the management of the trading system. These are usually described as being allowed under "GATT/WTO rules" rather than as "exceptions."

Within the GATT/WTO system the general justification for such rules is that they allow

members to accommodate and at the same time isolate a powerful interest that might otherwise set back an entire liberalization program.<sup>10</sup> Since the Uruguay Round these trade rules—particularly antidumping—have been invoked with increasing frequency—particularly by developing economies. Moreover, WTO members increasingly treat their use as a reserved right of unilateral protection similar to the national-security exception, rather than as an instrument to manage an ongoing and multilateral process of liberalization. (See box 2.2.)

Recent data on the incidence of use of antidumping rules by broad country groups reveal several ominous patterns. The first is a tendency for both developed and developing countries to resort to antidumping measures—1,979 between 1995 and June 2002 (table 2.8). More antidumping actions were initiated by developing countries against other developing countries than by or against industrial countries.

The emergence of developing countries as major users of antidumping measures is a recent phenomenon. The use of this form of protection, which requires complex and expensive administrative processes, has traditionally been eschewed by developing countries. However, perhaps in part because WTO has become less tolerant of some other avenues for introducing discretionary protection, such as measures for balance-of-payment purposes, many developing countries have begun to make use of antidumping measures. In 1996, 767 antidumping actions were pending, of which 581 had been introduced by industrial countries. By June 2002, the number of pending actions had grown to 1,189, of which 636 had been initiated by industrial countries and 553 by developing and transition economies.

All groups of countries show a striking tendency to impose antidumping measures disproportionately against the exports of developing and transition economies. But when the actions shown in table 2.8 are divided by the dollar value of imports from each group, the result is that industrial countries impose

## Box 2.2 Swimming upstream: The case of Vietnamese catfish

On July 22, 2003, the *New York Times* wrote the following editorial that illustrates well the vicissitudes of exporters in antidumping waters:

. . . After embracing decidedly un-Marxist reforms, Vietnam became one of globalization's brightest stories in the 1990's. The nation, a one-time rice importer, transformed itself into the world's second largest rice exporter and a player in the global coffee trade. The rural poverty rate was slashed to 30 percent from 70 percent. The normalization of ties between Hanoi and Washington brought American trade missions bent on expanding Vietnamese free enterprise. One of these delegations saw in the Mekong Delta's catfish a golden export opportunity, with the region's natural conditions and cheap labor affording Vietnam a competitive advantage. Sure enough, within a few years, an estimated half-million Vietnamese were living off a catfish trade nurtured by private entrepreneurs. Vietnam captured 20 percent of the frozen catfish-fillet market in the United States, driving down prices. To the dismay of the Mississippi Farm Bureau, even some restaurants in that state—the center of the American catfish industry—were serving the Vietnamese species.

Soon . . . Vietnamese farmers were caught in a nasty two-front war being waged by the Catfish Farmers of America, the trade group representing Mississippi Delta catfish farmers. The Mississippi catfish farmers are generally not huge agribusinesses, and many of them struggle to make ends meet. But that still does not explain how the United States, the international champion of free market competition, could decide to rig the catfish game to cut out the very Vietnamese farmers whose enterprise it had originally encouraged.

Last year . . . the American catfish farmers managed to persuade Congress to overturn science. An amendment, improbably attached to an appropriations bill, declared that out of 2,000 catfish types, only the American-born family—named *Ictaluridae*—could be called 'catfish.' So the Vietnamese could market their fish in America only by using the Vietnamese terms "basa" and

'tra'. . . . Catfish Farmers of America, ran advertisements warning of a 'slippery catfish wannabe,' saying such fish were 'probably not even sporting real whiskers' and 'float around in Third World rivers nibbling on who knows what.' Not satisfied with its labeling triumph—an old trade-war trick perfected by the Europeans—the American group initiated an antidumping case against Vietnamese catfish. And for the purposes of this proceeding, Congressional taxonomy notwithstanding, the fish in question were once again regarded as catfish, not basa or tra. . . .

Antidumping cases involve allegations that imports are being sold more cheaply than they are back home or below cost, practices rightly banned by trade laws. . . . In this case, the Commerce Department had no evidence that the imported fish were being sold in America more cheaply than in Vietnam, or below their cost of production. But rather than abandoning the Mississippi catfish farmers to the forces of open competition, the department simply declared Vietnam a "nonmarket" economy. The designation allowed it simply to stipulate that there must be something suspect going on somewhere—that Vietnamese farmers must not be covering all the costs they would in a functioning market economy. Tariffs ranging from 37 percent to 64 percent have been slapped by the department on Vietnamese catfish. . . .

Prices along the Mekong crashed, as the exporters who buy his fish moved to protect their margins. . . . Faced with the prospect of losing their investment, [farmers] might be shocked to learn that [the] Commerce Department says they do not operate in a free market. . . .

The United States International Trade Commission, an administrative agency in Washington, provided its final verdict on July 23. The verdict stated that the American catfish industry was hurt by unfair competition due to dumping by Vietnam—making the tariffs permanent.

Source: *New York Times*, July 22, 2003.

**Table 2.8 Most antidumping actions are filed by developing countries against other developing countries**
*Antidumping actions initiated between 1995 and June 2002*

Initiated by	Initiated against			
	Industrial economies	Developing economies	Transition economies	All economies
Industrial economies <sup>a</sup>	198	494	127	819
Developing economies <sup>b</sup>	357	649	138	1,144
Transition economies <sup>c</sup>	4	6	6	16
All economies	559	1,149	271	1,979

a. Australia, Canada, 15 European Union members, Iceland, Japan, New Zealand, Norway, Switzerland, and the United States.

b. All other economies excluding industrial economies and transition economies. China is included in the totals for developing economies

c. 27 transition economies, as defined by *World Development Report 1996* (Albania, Armenia, Azerbaijan, Belarus, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Macedonia (FYR), Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Poland, Romania, Russian Federation).

Source: WTO Antidumping Committee Reports.

antidumping measures on developing countries more than twice as frequently as the developing countries' volume of exports would imply. Against transition countries, the statistics are even worse, with measures being applied four times as frequently as their volume of trade would imply. Developing countries are only marginally better in their treatment of developing countries, and impose antidumping measures against other developing countries 50 percent more frequently than would be suggested by the volume of imports. Industrial countries are treated relatively lightly by both industrial and developing countries, with only 43 percent as many actions imposed on them as would be implied by their value of imports.

Rates of protection being applied through antidumping measures are astonishingly high (table 2.9). Though industrial economy tariffs

now average only 4 percent, their antidumping rates have been *seven to ten* times higher. This is new protection, not a temporary return to rates of protection previously negotiated down under WTO auspices. The antidumping duties imposed by developing countries also are much higher than their tariff rates, with provisional measures ranging from 84 to 126 percent.

And antidumping rates are discriminatory. Antidumping decisions often apply different rates to imports from different sources (table 2.9).<sup>11</sup> The same biases are found in antidumping rates as have been reported for tariffs and various nontariff forms of protection: rates applied by developing economies are higher, and the bias against imports from developing economies is even more pronounced in rates applied by developing economies than in those applied by industrial economies.

**Table 2.9 Antidumping rates are much higher than tariff rates**
*Averages of highest and lowest rates applied in antidumping cases (percent)*

	Average antidumping margins				Average tariff rates
	Provisional measures		Definitive duties		
	Low	High	Low	High	
Industrial economies	28	41	31	48	4
Developing economies	84	126	58	83	13
All economies	50	75	43	64	5

Note: Post-Uruguay Round applied tariff rates; antidumping measures in place as of December 31, 2002; ad valorem rates.

Source: Calculations based on countries' notifications to the WTO.

The scale of the antidumping duties levied varies a great deal by country within groups, with some countries imposing extraordinarily high duties and other countries relatively moderate rates—although virtually all such duties are very high relative to currently prevailing tariff rates. While some countries, such as Australia, impose duties in the same order of magnitude as current tariffs, some countries are imposing duties at truly astronomical rates, and rates that seem likely to be prohibitive under almost all circumstances. A number of Latin American countries have measures above 100 percent, and frequently substantially above this level—the rates in Argentina, Mexico, and Peru exceed 300 percent (table 2.10). Further, these

rules are frequently applied to much broader groups of products in developing countries than has been the case in the past.

The large differences among countries in antidumping duty rates highlight the flexibility in the WTO rules on antidumping, flexibility that allows countries to “find” high margins of dumping, and to allow countries to impose high duties against them. It strains credulity to believe that exporters to Mexico and Argentina are 10 times as prone to dumping as exporters to the United States. Different interpretations of the same WTO rules, therefore, are leading to widely different outcomes, raising serious questions about the objectivity of the process.

**Table 2.10 Antidumping duties are high**

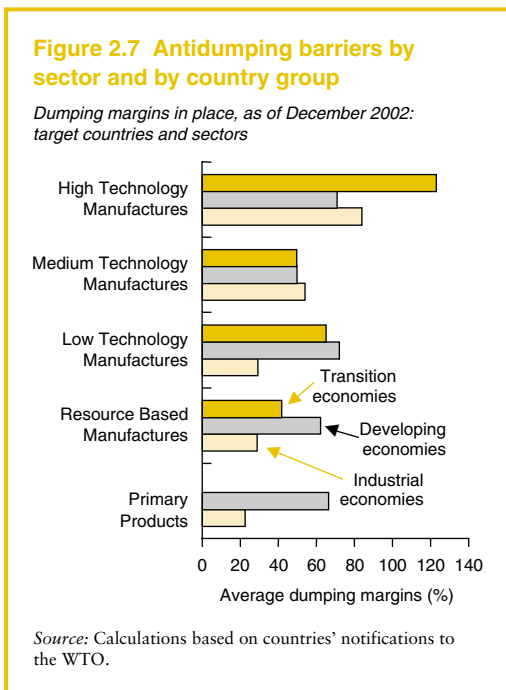
*Average dumping margins for measures currently in place, by country (percent)*

Average antidumping margins	Against all economies			
	Provisional measures		Definitive duty	
	Low	High	Low	High
By country				
Argentina	163	328	62	63
Australia	6	16	20	43
Brazil	54	64	38	47
Canada	40	41	42	42
China	28	50	27	50
Colombia	34	40	53	67
Czech Republic	n/a	n/a	29	73
Egypt	n/a	n/a	22	55
European Union (15)	33	45	32	46
India	64	91	69	105
Israel	4	10	11	26
Jamaica	256	256	104	104
Korea	47	56	31	41
Malaysia	28	65	10	25
Mexico	269	345	51	65
New Zealand	42	42	28	62
Peru	75	330	73	246
Poland	n/a	n/a	23	23
South Africa	40	63	38	53
Taiwan, China	n/a	n/a	76	116
Thailand	36	47	32	36
Trinidad and Tobago	119	119	135	135
Turkey	n/a	n/a	93	101
United States	30	49	29	50
Venezuela	116	119	123	123

n/a not applicable.

*Note:* Dumping margins associated with definitive measures in place as of December 31, 2002. Where applicable, numbers reflect dumping margins determined during the latest review of each case. For several countries (China, India, Peru, and Thailand), the table illustrates dumping margins related to antidumping measures in place as of June 30, 2002.

*Source:* Semiannual reports under Article 16.4 of Antidumping Agreement, submitted by individual WTO members to Committee on Antidumping Practices. The list of countries currently maintaining antidumping measures has been extracted from the Report (2002) of the Committee on Antidumping Practices, and from the above-mentioned Semiannual Reports of WTO members. No data were available for Indonesia or the Philippines.



The intensity of use of antidumping measures depends heavily upon the sectors in which it is applied. Figure 2.7 shows the height of the barriers imposed against developing countries by the level of technology in their exports. It reveals that antidumping barriers are disproportionately high against their exports of primary products, resource-based manufactures, and low-technology manufactured exports. For primary products, the average antidumping duty against developing countries is three times as high, at around 60 percent, as against the industrial countries. This means that antidumping barriers are relatively lower on the most dynamic exports of developing countries, high-technology exports. However, the antidumping barriers against these exports remain very high in absolute terms, at 65 percent.

The use of antidumping actions to generate protection has reached an advanced stage. It now threatens developing countries' trade both through the damaging effects on their own economies, and through adverse impacts

on their export opportunities. The Ministerial Declaration launching the Doha Development Agenda includes consideration of antidumping measures, and provides an opportunity for beneficial reform. Although reform will be difficult given the strong political support for this type of protection from industries in both developed and developing countries, the rapidly growing economic damage to all economies—those imposing these duties and those suffering from them—makes reform a high priority.

### From Doha to Cancún and beyond: How should protection be reduced?

Most of the protection in world markets is imposed through barriers to market access—an essential pillar of other elements of protection regimes, such as export subsidies in agriculture. Without a supporting tariff to preclude imports, an export subsidy will become merely a subsidy on return—exports will flow out in order to collect the subsidy, but the goods exported will be replaced by imports, with no significant impact on domestic producer prices. Reducing tariffs and other barriers to market access, therefore, is the central issue in removing the protection that distorts world markets.

WTO members are negotiating, in accordance with the agenda agreed at Doha, on approaches to reduce protection on agricultural and nonagricultural goods. For nonagricultural goods, in particular, the negotiations are to include reduction or elimination of tariff peaks and tariff escalation, and to emphasize products of interest to developing countries (WTO 2001). An emphasis on reducing tariff peaks is important both because such peaks are very costly to the countries imposing such tariffs, and because they are frequently on products of particular interest to developing countries. Francois, Martin, and Manole (2003) find that approaches to trade reform that most sharply reduce peak tariffs result in larger reductions in the average tariffs facing low-income countries.

## Box 2.3 The scourge of the specific

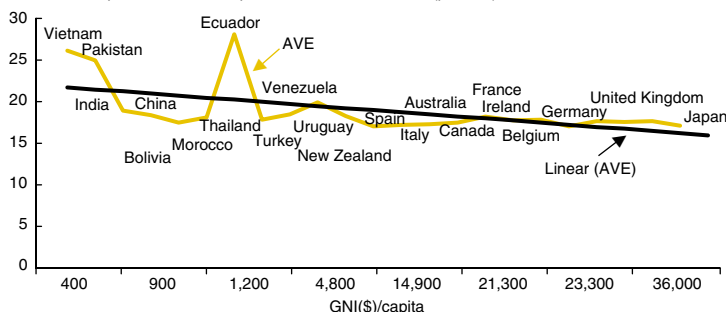
For most products, most countries impose protection through *ad valorem* tariffs. This form of protection is more transparent than other types of tariffs, such as specific or compound tariffs. A 10 percent tariff rate raises the price of an imported good by the same 10 percent whether the good is a car worth \$20,000 or a bicycle valued at \$50. A specific tax of \$50, by contrast, has an enormously different impact on the bicycle and the car. Further, the impact of the specific tariff depends on market conditions. If bicycle prices tumble to \$20, then the specific tariff of \$50 will raise prices by 250 percent instead of 100 percent.

Specific tariffs, which are very common on agricultural products, also are important on a number of industrial products of interest to developing countries, particularly textiles, clothing, and footwear. Recent research by Schott (2001) has revealed a striking tendency for poorer countries to export versions of many manufactured products with lower unit values than those exported by higher-income countries. As countries develop, they frequently upgrade their products, using more capital and skill to produce a better version of the same product. Schott finds that the unit value of a shirt from Japan, for instance, is 20 times that of the same good from the Philippines. In this situation, specific tariffs are likely to be much more of a burden on poorer developing countries than on industrial countries.

### Ad valorem equivalents of specific tariffs are usually higher on imports from developing countries than from high-income countries

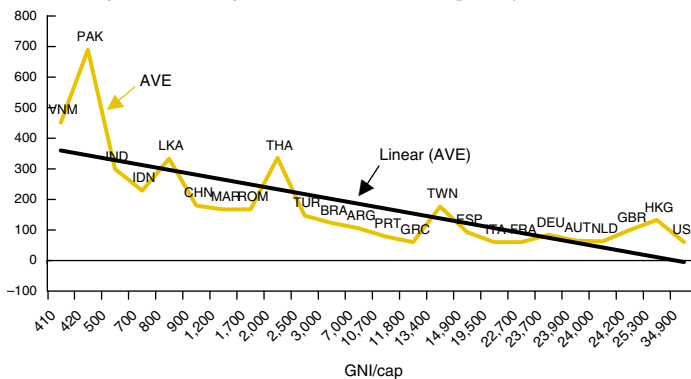
a. Ad valorem equivalent (AVE) protection on overcoat exports to the United States

Ad valorem equivalents of U.S. specific tariffs on overcoats (percent)



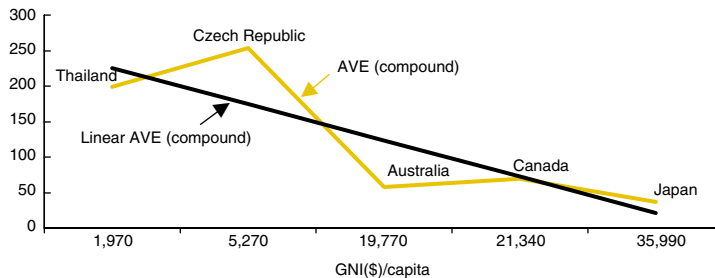
b. AVE tariffs on exports of leather shoes from Pakistan to Japan

Ad valorem equivalents of EU specific tariffs on leather shoes (percent)



c. Ad valorem equivalent (AVE) protection on starch exports to the European Union

Ad valorem equivalents of EU specific tariffs on starch (percent)



Source: Stawowy (2001) and unit value data from COMTRADE.

(Box continues on next page)

## Box 2.3 (continued)

We draw on a detailed analysis of *ad valorem* equivalents undertaken at UNCTAD (Stawowy 2001) to compare these burdens across countries.

We find many cases where the *ad valorem* equivalents of specific tariffs are sharply higher on poor than on rich countries. The top figure shows, for instance, that Vietnam and Ecuador face tariffs on overcoats twice as high as Japan does—a type of discrimination covered up by the specific tariff. Exports of leather shoes from Pakistan to Japan feel the boot strongly—they are subject to tariffs of around 700 percent, while exports from the advanced industrial countries are taxed at less than 100 percent.

Also in the EU market, Japan pays less than 50 percent, while Thailand and the Czech Republic pay over 100 percent on their exports of starch—surely enough to stiffen resistance to this form of protection once the facts are known.

The nontransparency of specific tariffs, and the fact that they can discriminate so strongly against lower-income countries, are two good reasons for supporting proposals (WTO 2003a, Annex I) to eliminate specific tariffs under the Doha Development Agenda. The proposals for the elimination of specific tariffs clearly deserve strong support from everyone concerned about the welfare of the poor.

### *Using a formula is important*

A key choice in multilateral market-access negotiations is whether to proceed using a “request-and-offer” approach or a formula approach. Under a request-and-offer approach, countries with major supply-and-demand interests in a particular area agree on bilateral tariff “concessions” that are then generalized to all other members on a most-favored-nation basis. As noted by Baldwin (1987), this approach was successful in achieving substantial reductions in protection under the GATT only in the initial Geneva Round of negotiations in 1947. The request-and-offer approach made disappointingly slow progress in the four following rounds of negotiations.<sup>12</sup> Only with the introduction of a comprehensive formula approach during the Kennedy Round (1963–67) was it again possible to cut protection substantially—35 percent versus an average of 2.5 percent in the previous four negotiations. The next round, the Tokyo Round (1974–79), used a more sophisticated formula, the so-called Swiss formula. It achieved a 30 percent reduction in average tariffs and brought down the higher tariffs by much more than the lower ones. Unfortunately, however, many products of particular interest to devel-

oping countries were excluded, partly because developing countries were not active *demanders* in these negotiations.

The Uruguay Round (1986–94) used a simpler approach for nonagricultural tariffs that involved setting broad tariff-reduction goals, such as a 30 percent reduction on industrial products, but left the distribution of the cut across sectors up to negotiations between trading partners. This approach was successful in achieving substantial tariff reductions. It was not, however, successful in achieving higher proportional cuts in higher tariff rates and thereby in reducing tariff escalation. Abreu (1996) observes that manufactured goods with higher tariff rates typically had smaller proportional tariff cuts.

In the Doha negotiations, there appears to be a broad consensus that some sort of formula will be required to obtain reductions in protection sufficiently broad-based to achieve increases in market access. The increase in the number of active participants seeking to use the WTO to achieve increases in market access—and to lock in reductions in tariffs—would make the one-on-one, request-and-offer procedures even less likely to succeed than they have in past GATT negotiations.

*Some formulas are more prodevelopment than others*

Even with a broad agreement to employ a formula, much needs to be done to bridge the gap among alternative approaches. Many different approaches have been proposed, and not all can be considered in this study, but examination of a few key proposals is instructive. In agriculture, the United States and the Cairns Group have proposed a Swiss-formula approach that would reduce all tariffs below 25 percent, regardless of their initial level. At the other end of the spectrum, Europe and Japan have proposed an approach involving a “headline” reduction of 36 percent that could easily be evaded, and only a 15 percent required reduction in individual tariffs. This would allow protection for Japanese rice, for example, to remain at close to 600 percent.

In nonagricultural market access, China, India, and Korea all have made proposals for formulas that would sharply reduce tariffs and reduce high tariffs relative to average tariffs. The European Union has advocated an approach involving different tiers for tariffs, an approach that would facilitate larger reductions in high tariffs relative to lower rates. Japan has proposed a formula that would give countries flexibility with individual tariffs but that would require larger reductions in average tariffs on high-tariff goods.

Adopting a formula that limits tariff peaks relative to average tariffs is important for developing countries. Some countries have proposed “flexible” approaches allowing retention of peak tariffs, while others have proposed approaches that sharply reduce peaks relative to other tariffs. Politically, it is frequently attractive to retain high tariffs on sensitive products where political support for protection is strong. This political convenience needs to be weighed against the adverse implications for the country itself, and for its trading partners, if high protection is retained in some sectors. Retaining high levels of protection in some sectors is likely to be costly to the importing economy because high rates of protection mean

large distortions in production and consumption patterns. The economic costs of these distortions rise with the square of the tariff, so the costs of a tariff twice as high as the average are four times those of an average tariff. Further, high tariffs are inefficient in raising tariff revenues because the volume of imports across these tariff barriers is likely to be small.

From the point of view of developing-country exporters, approaches that allow countries to retain tariff peaks—and especially approaches that would allow the industrial countries to retain high peaks—are likely to be problematic for another reason. The tariff structures of most industrial countries involve quite low average tariffs as a result of the eight previous rounds of GATT/WTO negotiations. But they continue to contain many high peaks on products of particular interest to developing countries (Hoekman and Olarreaga 2002). The coefficient variation of industrial country tariffs—the variation relative to the average level—is now much higher in these countries than it is in developing countries, where the wave of tariff reductions during the 1980s and 1990s cut higher tariffs in line with average tariffs.

There is a particular concern with approaches that allow the retention of high peaks—such as the average-cut approach proposed by a number of high-protection countries in the negotiations on agricultural market access.<sup>13</sup> Such an approach, based on a meaningless measure, provides scope for evasion of countries’ commitments in the Doha Development Agenda to reduce protection and to provide special and differential treatment in favor of developing countries.

A wide range of formulas is available, the effects of which depend upon a combination of factors, including the extent to which the formulas would reduce average rates of protection, as well as the variability of tariffs around that average (see box 2.4). An important issue to understand is the extent to which changing the dispersion of overall protection, for a given average cut in tariffs, affects the average reduction in protection facing developing coun-

## Box 2.4 “Average cuts,” the cut you have when you’re not having a cut

Years ago, as concern grew about the impacts of drunk driving, the venerable Clayton’s Nonalcoholic Tonic repositioned its advertising with the slogan “Clayton’s, the drink you have when you’re not having a drink.” Macho individuals could still exhibit the bravado of having one or two “for the road” while avoiding the sharply increased penalties associated with drunk driving. Today, as concern builds about the adverse impacts of agricultural policy distortions for world trade, and particularly for developing country farmers, the notion of an average cut in tariffs takes on a similar tone. With this device, policymakers can commit to sharp cuts in agricultural protection without actually doing anything at all.

To see how this paradox arises, consider a putative agreement to cut agricultural protection by 50 percent in a country with just two agricultural tariffs—one of 1 percent and one of 100 percent. A cut of 100 percent in the 1 percent tariff, and of zero in the 100 percent tariff, yields the necessary 50 percent average cut in tariffs—great for the headlines.

But in reality, virtually nothing has been done. The average tariff has fallen by half of 1 percent, from 50.5 percent to 50 percent. Of course, policymakers could load the cuts onto the high tariff, taking the average tariff from 50.5 percent to 0.5 percent. It is unlikely that they would do this, however. The 100 percent tariff is high because it is supported by strong interest groups, which would surely oppose their industry being “sacrificed.” The fundamental problem with the average-cut approach is that it provides no reward for cutting a high tariff rather than a low one, and hence allows policymakers to avoid the agreed goal of achieving substantial improvements in market access.

As we have seen, the “average-cut” approach provides little or no guidance on the effects of liber-

alization. It can be totally deceptive in its suggestion that sizable reductions in protection are required. Even when it is built into a tiered reduction in protection, such as the three-band system of tariff cuts with higher cuts in higher tariffs proposed in the Harbinson draft (WTO 2003c), the use of the average-cut approach makes the average cuts specified in each group almost meaningless, by providing an incentive to reduce the highest tariffs in each band by the smallest possible amount.

The proponents of the average-cut approach argue that more specific formulas are not acceptable because they do not provide the flexibility needed to reduce their agricultural tariffs. But, as we have seen, the average-cut approach provides complete flexibility to do nothing (or anything), and none of the discipline that is the *sine qua non* of world trade rules. To provide some discipline, proponents of the average-cut approach allow for a minimum cut in each tariff line. But this approach is extremely rigid unless the minimum cut is very low, in which case there is no discipline.

If the desire for flexibility made by the proponents of average cuts were accepted, what could be done to provide some discipline? Fortunately, there is a simple and nondeceptive alternative. A rule that specifies a “cut in average tariffs” would allow for flexibility while ensuring that protection was reduced on average, while providing some reward for cutting high tariffs, rather than low tariffs. The simple, but not purely semantic, move to a requirement for a cut in the average—rather than an average-cut—would preserve flexibility, while introducing some discipline.

Source: World Bank staff.

tries. Approaches that attack tariff peaks more aggressively will be more beneficial to developing countries, since developing countries face disproportionately high tariffs. Francois and Martin (2003) derive a flexible Swiss formula that allows higher tariffs to be addressed more or less aggressively for any given reduction in

average tariffs. Francois, Martin, and Manole (2003) show that approaches that are more aggressive in reducing high rates of protection will result in larger cuts in average rates of protection faced by developing countries. Such approaches also reduce variation in tariffs, which is a major source of cost to the importing

## Box 2.5 The implications of five tariff-cutting proposals

As is evident from the table, the proposal by China uses a Swiss-formula approach, but with a ceiling for each country based on the average level of its own tariffs (see Annex table 2A.1). After the application of the formula, all tariffs will be below the original average, and countries with higher average tariffs have tariff reductions that are, in percentage points, larger than those in countries with lower tariffs. Countries with more variable tariffs will, in general, face larger percentage reductions in tariffs, because the tariff peaks that give rise to variability are reduced very sharply. In industrial countries, the formula is applied to countries' applied tariff rates. In developing countries, the formula is generally applied to the average of applied and bound tariffs.

The proposal by the European Union seeks to compress the distribution of tariffs by dividing tariffs up into bands and applying higher proportional cuts on tariffs in higher bands. Tariffs below some threshold to be negotiated, such as 2 percent, are to be set to zero. A specific proposal to set the bands is offered in an addendum to the proposal, and it is that specific proposal that we analyzed.

The proposal by India involves making a proportional cut, of a magnitude to be negotiated, in all tariffs. The proportional cut in developing-country tariffs would be two-thirds of that in developed countries. After application of the formula, tariffs above three times the average would be reduced to three times the average after application of the for-

mula. Bound tariff rates are to be used as the base rates, with unbound tariffs for each product to be replaced initially with the higher of the highest bound rate in its schedule, or the applied rate for that product. For illustrative purposes, we set the proportional cut at 50 percent.

The U.S. approach involves reducing to zero all tariffs of 5 percent or less. Then, a Swiss formula with a ceiling parameter of 0.08 is applied to all other tariffs. Applied rates, rather than bound rates, are generally used as the base. This approach is to be implemented by 2010, with all tariffs being reduced to zero by 2015.

The proposal by the chair of the Market Access Committee involves use of a Swiss formula with the ceiling parameter equal to each country's average tariff, scaled up or down by a parameter, B, to be negotiated. The base rate is to be the bound rate, unless the tariff line is unbound, in which case it is to be twice the applied rate. In addition, the proposal calls for reductions of tariffs to zero in a range of sectors, including electronics, fish, footwear, leather goods, motor vehicle parts, and textiles and clothing. In this initial assessment of the effects of the proposals, these elements—whose inclusion is still to be negotiated—have not been included.

Source: World Bank staff.

country (Martin, Van der Mensbrugge, and Manole 2003).

A much wider range of approaches has been offered in the negotiations on nonagricultural market access than in agriculture (see chapter 3). We examine five proposals on market access for nonagricultural products that are sufficiently specific to allow analysis of their implications for tariffs—those from China, the European Union, India, the United States, and from the chair of the WTO's Market Access Committee. The implications of any of these formulas (box 2.5) depend heavily upon the

base tariff rates to be cut, the approach taken to cutting, the treatment of tariffs that are initially unbound, and whether any supplementary provisions call for eliminating tariffs on particular groups of products. To gain some idea of the consequences of these measures, we examine their implications for tariffs facing low-income countries in four major markets—Brazil, the European Union, India, and the United States.

One key issue in any of the formulas is the selection of the base tariff rates. Traditionally, the GATT/WTO system has used bound rates

as the basis for subsequent negotiations. As well as having the advantage of familiarity, this approach has an important dynamic advantage. If countries believe that bound rates will be the basis for future negotiations, they will feel free to reduce applied rates when they are convinced that this is in their economic interests. Negotiations based on bound rates embody a pure, one-for-one form of credit for such autonomous liberalization.<sup>14</sup> If a country chooses to reduce its applied rates below the bound level, then reductions in applied rates flowing from any future agreements to cut bound rates by a particular percentage will be smaller since any given cut in bound rates will require a correspondingly smaller reduction in applied rates. Use of applied rates as the base for tariff reductions creates potential incentives to increase applied rates and is certainly likely to have a chilling effect on future autonomous liberalization.

In examining the implications of the different formulas, we build on the analysis of WTO (2003b), which examines the implications of tariff reduction formulas for a hypothetical schedule of tariff bindings. We apply the tariff reduction formulas to the specified base tariffs (bound, applied, or a combination), and then examine the implications for applied rates by comparing the resulting tariff bindings with applied rates prior to the analysis. If the new binding is below the prior applied rate, then the new applied rate is reduced to the new bound rate. Table 2.11 presents weighted average tariffs for each of the four focus economies under each of the five proposals.

A striking feature of the results is just how sharply all five formula approaches reduce tariffs in the industrial-country markets considered. Average tariffs facing the low-income countries in the United States, for example, are reduced from 4.3 percent to 1.4 percent by the Chinese formula and 1.3 percent by the U.S. formula. All of the formulas also would substantially reduce the standard deviation of tariffs in the industrial countries—indicating that they would reduce tariff peaks sharply.

The situation in developing-country markets is considerably different, however. There, tariff reductions are much smaller as a proportion of the initial tariff rates—although not necessarily in percentage points of tariff, since the initial tariff rates are much higher. The smaller reductions as a percentage of initial tariffs are a reflection in large measure of the “tariff binding overhang”—the situation where tariff bindings are substantially above applied rates. They also reflect the smaller percentage reductions for developing countries inherent in India’s formula, as well as India’s proposal to allow unbound tariffs to be set at the highest binding in the schedule, or at the applied rate for the commodity being liberalized, whichever is higher. The U.S. formula would lead to substantial reductions in applied tariffs in India and Brazil, with tariffs facing low-income exporters falling to 6 percent in India and 5 percent in Brazil. The EU formula also would result in large cuts in applied rates in developing countries, with tariffs facing low-income exporters falling to 10.8 in India and just over 8 percent in Brazil, a striking finding given that this approach is based on bound tariff rates.

A key issue is whether the reductions in tariffs are to be measured using percentage cuts in tariffs or alternative measures, such as the percentage-point reduction in tariffs or the percentage-point reduction in the price of imports brought about by the tariff reduction.<sup>15</sup> As noted above, only the U.S. formula and, to a lesser extent, the European formula, bring about large percentage-point reductions in tariffs in India or Brazil. If however, progress is measured in terms of the percentage-point cut in tariffs or the percentage-point cut in import prices, then the reductions in India and Brazil look much more substantial, even under the Indian formula or the Chinese formula, where the percentage cut in tariffs is relatively small. Clearly, much patient analysis will be required to assess the consequences of the proposed reforms for individual countries—and a lot of hard bargaining before WTO members are likely to agree on a specific package of re-

**Table 2.11 Competing formulas make a big difference for tariffs***Weighted average on tariffs (percent) for Brazil, European Union, India, and the United States under various proposed formulas*

Affected area	Formula	Tariffs facing exporters			
		Applied tariff, average	Applied tariffs, weighted average, low-income countries	Applied tariffs, weighted average, middle-income countries	Standard deviation
Brazil	Initial tariff	15.95	14.55	14.00	5.96
	Chinese formula	12.34	11.47	10.17	3.49
	European formula	10.11	9.66	8.14	2.51
	Indian formula	15.50	14.20	12.28	5.83
	U.S. formula	5.04	4.71	4.00	1.20
	Chairman's formula B=2	15.60	14.20	12.37	5.68
	Chairman's formula B=1	13.33	12.17	10.64	4.08
European Union	Initial tariff	4.18	5.28	3.76	3.72
	Chinese formula	1.85	1.99	1.45	1.14
	European formula	2.06	2.67	1.87	2.02
	Indian formula	1.94	2.49	1.78	1.77
	U.S. formula	1.29	1.73	1.23	1.87
	Chairman's formula B=2	2.18	2.52	1.80	1.64
	Chairman's formula B=1	1.56	1.74	1.25	1.08
India	Initial tariff	32.99	28.12	26.71	8.57
	Chinese formula	28.19	24.09	21.98	8.48
	European formula	11.98	11.24	10.82	1.90
	Indian formula	28.30	24.23	21.96	8.67
	U.S. formula	6.31	5.93	5.71	0.73
	Chairman's formula B=2	29.40	25.15	22.96	8.14
	Chairman's formula B=1	23.78	20.99	19.36	5.82
United States	Initial tariff	3.70	4.26	3.23	4.53
	Chinese formula	1.40	1.35	1.11	1.14
	European formula	1.76	2.10	1.56	2.20
	Indian formula	1.50	1.69	1.25	1.67
	U.S. formula	1.00	1.31	0.82	1.80
	Chairman's formula B=2	1.63	1.75	1.37	1.59
	Chairman's formula B=1	1.13	1.17	0.95	1.03

Source: World Bank staff.

forms. We hope that the analysis presented here will make an important contribution to clarifying the issues and tradeoffs involved in these choices.

### *Putting development into the Doha Development Agenda requires serious liberalization*

Although trade policy reform has contributed to an unprecedented shift in export composition and trade growth, the next steps will be difficult. Today's protection remains heavily concentrated in the most politically sensitive

areas—textiles, clothing, and other labor-intensive manufactures, as well as agriculture—in both rich and poor countries. In nonagricultural goods, three efforts are particularly crucial:

- First, the progressive phase-out of quotas under the Agreement on Textiles and Clothing, now lagging, is critical to providing market access for developing countries. Reforms in current quota-holding countries may be necessary to ensure a smooth adjustment.

- Second, efforts to cut back antidumping measures that create a patchwork of ad hoc protection are essential if market access granted by the right hand, through quota elimination and tariff reductions, is not to be withdrawn by the left hand of new access-restricting antidumping suits.
- Third, moving forward in nonfarm trade requires a Swiss-formula, or related top-down approach, that will require disproportionately greater reductions in high tariffs so as to mitigate antidevelopment policy embedded in trade regimes around the world. The choice of the for-

mula, and of its coefficients of reduction, is important.

Much must be done behind the border to ensure that countries that have missed out during the current wave of international integration will be able to take advantage of the opportunities provided by a more streamlined and development-friendly trading system. If these measures are adopted—along with others associated with agricultural trade, labor mobility, and the special treatment some developing countries enjoy—then the promise of the Doha Development Agenda may be realized.

**Table 2A.1 The various liberalization proposals have very different features**

Features of trade liberalization proposals advanced by China, the European Union, India, the United States, and the Chair of the WTO Market Access Committee

Proposal	Base rate ( $T_0$ )	Unbound tariff	Sectoral tariff elimination	Formula
China	Developed: applied rate Developing: simple average of applied and bound rate			$T_1 = \left( \frac{(A + B \times P) \times T_0}{(A + P^2) + T_0} \right)$ <p>A: Simple average of <math>T_0</math>  <math>P = T_0/A</math>                      B=3 for 2010, B=1 for 2015</p>
European Union	Bound rate	Applied duty, November 14, 2001		$T_1 = B_1^L + (T_0 - B_0^L) \times \left[ \frac{B_1^U - B_1^L}{B_0^U - B_0^L} \right]$ <p><math>B_0^L</math> and <math>B_0^U</math> are lower and upper limits in the base bracket  <math>B_1^L</math> and <math>B_1^U</math> in the new bracket</p>
India	Bound rate	Higher of maximum bound rate and applied rate on cut-off date		<p>Step 1.  <math>T_1 = (1 - (A \times Y / 100)) \times T_0</math></p> <p>A=1 for developed countries                      A=0.67 for developing countries</p> <p>Step 2. Minimum of <math>T_1</math> and three times the average of results from Step 1</p>
United States	Lesser of applied rate and bound rate		Wood products; non-ferrous metals; bicycle parts; soda ash; photographic film; electronics; fish and fishery products; scientific equipment; environmental goods; Information Technology Agreement (ITA) products and goods covered by the Agreement on Trade in Civil Aircraft, Uruguay Round zero-for-zero sectors	<p>Step 1. Period to 2010.</p> $T_1 = 0 \quad \text{if } T_0 \leq 5\%$ $T_1 = \frac{8 \times T_0}{8 + T_0} \quad \text{if } T_0 > 5\%$ <p>Step 2. From 2015, all tariffs go to zero.</p>
Chair, WTO Market Access Committee	Bound rate	Two times the MFN applied rate (2001). If MFN applied rate is zero, then 5 percent.	Electronics and electrical goods; fish and fish products; footwear; leather goods; motor vehicle parts and components; stones, gems, and precious metals; and textiles and clothing	$T_1 = \frac{B \times T_a \times T_0}{B \times T_a + T_0}$ <p><math>T_a</math> is the initial average tariff                      B is a coefficient to be determined</p>

Source: WTO.

## Notes

1. One potential concern with any measure of the share of particular exports is the impact of price changes. If, for instance, changes in the observed shares of exports reflect primarily changes in prices over the sample, then they might be reversed by subsequent price changes. It is difficult to fully adjust for price changes, but at least a crude indication was obtained by deflating each component of exports by a suitable deflator and comparing the result with undeflated export shares. It appears that the changes in shares have primarily been the result of changes in the volume of exports. This implies that they are much more likely to be sustained than changes resulting only from changes in the prices of particular export goods. Increases in the prices of resources—and particularly oil—have caused increases in the importance of exports of these goods in the past, but these have been reversed by subsequent price declines.

2. The use of categories defined by income status at the beginning of the sample period makes an enormous difference. If we define our low-income sample by income status at the end of the period, the trade growth rate of the low-income group is below average.

3. This analysis was undertaken using the 1997 input-output data from the Global Trade Analysis Project (GTAP), input-output information for 1997, and the GTAP time series database of trade and trade patterns. See Hummels, Ishii, and Yi (2001) for precise definitions of these measures.

4. While the resistances to integration graphically captured in the book “Why the Emperor’s New Clothes Are Not Made in Colombia” (Morawetz 1981) have certainly abated, the continuing low level of integration suggests the continued existence of considerable resistance to the level of integration associated with global production sharing.

5. The growth performance of this region is biased upward because of large-scale under-reporting of trade prior to 1990.

6. The rise in the price of factor inputs and the prices of nontraded goods is frequently identified as the real exchange rate appreciation associated with protection policies.

7. This is an underestimate of the costs imposed by protection on exporters. In addition, tariffs raise costs by raising the costs of nontraded goods and nontraded factors of production. This adverse impact, the so-called real exchange rate effect, should also be taken into account.

8. Baldwin (1987) estimates that the average tariff reductions by the industrial countries were 35 percent in the Kennedy Round and 30 percent in the Tokyo Round.

9. Details on the barriers faced by individual countries on individual products in particular markets can be obtained using the WITS software (see [www.wits.worldbank.org](http://www.wits.worldbank.org)).

10. Another justification might be that such rules guide members toward good policy actions—actions that advance the national economic interest of the members that apply them. This historically is not the rationale for their inclusion in the GATT/WTO. Empirically, extensive research has shown that antidumping actions are not “good” protection, they are ordinary protection with a good public relations program.

11. The average of rates actually applied is thus at least as high as the lower figure, no higher than the higher figure.

12. A simple formula was first tried out in the Dillon Round (Ernest Preeg, personal communication).

13. This approach focuses on achieving specified average tariff cuts, rather than cuts in the average. Unfortunately, a given average cut can likely be achieved with minimum political impact by imposing large cuts in the lowest tariffs, rather than the large cuts in the highest tariffs that are economically desirable.

14. Approaches that use historical applied rates, such as applied rates at the end of the Uruguay Round, would also have this feature of providing credit for subsequent, autonomous liberalization.

15. This measure, which involves measuring the change in the tariff rate divided by one plus the tariff rate, is widely used in analytical work, and reported extensively in Finger, Ingco, and Reincke (1996).

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