Global Economic Prospects

Realizing the Development Promise
of the Doha Agenda

2004

1818 H Street, NW
Washington, DC 20433
Telephone 202-473-1000
Internet www.worldbank.org
E-mail feedback@worldbank.org

1 2 3 4 04 03 03

ISBN 0-8213-5582-1
ISSN 1014-8906

Cover photo credit: AFP/CORBIS.

Workers at the Los Ausoles coffee plantation in Ahuachapan, El Salvador, clean coffee beans, August 14, 2002.

Contents

Acknowledgments

This report was prepared by the World Bank's Development Prospects Group, which drew on resources throughout the Development Economics Vice Presidency and the Bank's operational units. Under the direction of Uri Dadush, Richard Newfarmer managed the report and served as its lead author. The principal chapter authors were Richard Newfarmer (overview); Elliot Riordan and Dominique Van der Mensbrugghe (chapter 1); William Martin and Vlad Manole (chapter 2); Ataman Aksoy (chapter 3); Pierre Sauvé, drawing on work by the Organisation of Economic Co-operation and Development (chapter 4); John Wilson, Shweta Bagai, and Carsten Fink (chapter 5); and Bernard Hoekman and Caglar Ozden (chapter 6). We are grateful for the ideas and insights of Bijit Bora (World Trade Organization), Michael Finger (American Enterprise Institute), Gary Hufbauer (Institute for International Economics), Mari Pangestu, Gary Horlick, Julia Nielson (OECD), Julio Nogues (United Nations Development Programme), and Olivier Cattaneo (Agence Française de Développement) who provided comments at various stages. The report was prepared under the general guidance of Nicholas Stern.

3

Agricultural Policies and Trade

Trade in agriculture is important to the world's poor—

Agriculture is the largest employer in low-income countries, accounting for about 60 percent of the labor force and producing about 25 percent of GDP. Even in middle-income countries, where agriculture's share of GDP is only about 15 percent, the sector still accounts for more than 25 percent of employment. When coupled with agro-related industries and food-related services, its share, even among middle-income countries, is typically 25 to 40 percent of GDP. About 73 percent of the poor in developing countries live in rural areas. Rural development, therefore, is central to alleviating poverty.

Government policy has heavily distorted agricultural performance in both developing and developed countries. Until the 1990s, industrial countries generally protected agriculture, whereas developing countries generally taxed it (Schiff and Valdes 1992). Industrial countries supported their agricultural sectors through subsidies to producers, high tariffs, and other nontariff measures such as import restrictions and quotas.

—but agricultural policies have often worked to the detriment of the poor

Most of the developing countries generated the bulk of their agricultural GDP in lower-efficiency production for the domestic market, supplying the world market with tropical commodities that could not easily be produced in the industrial countries. In products for which they competed with industrial countries, such as sugar and beef, some countries could export limited amounts under preferential-access programs. In an effort to generate public revenues from commercialized export activities, governments levied export taxes on agricultural products while protecting manufacturing through high import tariffs and other import restrictions. Even for agricultural products that were not exported, price controls, exchange rate policies, and other restrictions kept prices low for urban consumption.

In the last decade, developing countries shifted from taxing agriculture to protecting it. Import restrictions on manufactured products have declined dramatically, exchange rates have been devalued, multiple-exchange-rate systems penalizing agriculture have been abandoned, and export taxes have effectively disappeared (World Bank 2000; Jansen, Robinson, and Tarp 2002; Quiroz and Opazo 2000). Meanwhile, reforms in most industrial countries, including many of the successful middle-income countries, have been modest—despite the inclusion of agriculture under the World Trade Organization (WTO) in the Uruguay Round of international trade negotiations. The result of these policies has been overproduction and price declines in many commodities, reducing opportunities for many developing countries to expand exports and penalizing the world's poor.

Consequently, although developing countries have almost doubled their share of world

trade in manufactures over the last two decades, their share in agricultural trade has been stuck at around 30 percent. During the 1990s, the growth of developing-country agricultural exports to industrial countries slowed as exports to other developing countries accelerated. During this period, 56 percent of the growth of developing-country agricultural trade was accounted for by sales to other developing countries and 44 percent by sales to industrial countries. The middle-income countries have managed to increase global market share, principally by entering into other developing countries' markets and by aggressively diversifying into nontraditional exports, such as seafood products, fruits, vegetables, cut flowers, and processed foods. Growth of these nontraditional exports has outpaced growth of traditional commodities by three to one. Meanwhile, many low-income countries, except for China, have had less success—their share of world agricultural trade has declined.

High border protection in rich countries frustrates development

These patterns reflect—among other things—the structure of global protection. Border protection in rich countries continues to be high, nontransparent, and antidevelopment. Average agricultural tariffs in industrial countries, when they can be measured, are two to four times higher than manufacturing tariffs. In addition, about 28 percent of domestic production in countries belonging to the Organisation for Economic Co-operation and Development (OECD) is protected by tariff rate quotas (TRQs). More than 40 percent of the tariff lines in the European Union (EU) and United States contain specific duties, which make it difficult to calculate average tariffs and obscure actual levels of protection. Tariff peaks as high as 500 percent confront imports from developing countries. Tariffs also increase by degree of processing, creating a highly escalating tariff structure that limits access for processed foods. Preferences do not compensate for these high levels. In the United States, only 34 percent of agricultural imports from countries covered by the Generalized System of Preferences (GSP) were eligible for preferences, and 26 percent of imports received them. Developing countries, too, have maintained high border protection and, on average, have higher agricultural tariffs than industrial countries. However, direct comparisons are difficult because of the complex nature of protection in industrial countries.

Within OECD countries, budget subsidies and transfers from consumers (from high tariffs and quantitative restrictions on domestic production of selected commodities) amounted to about $250 billion in 1999–2001. This protection decreased from 62 percent of farm revenues in 1986–88 to 49 percent in 1999–2001—still a very high percentage. Of this support, 70 percent came from consumers via higher prices associated with border protection and 30 percent from direct subsidies. In developing countries, almost all support is generated by border barriers. A silver lining to this dark cloud is that some developed-country subsidies have been at least partially delinked from levels of production, lowering the incentive to overproduce. These partially decoupled subsidies increased from 9 percent of total subsidies in 1996–98 to more than 20 percent in 1999–01.

Although official export subsidies may be small and shrinking, *effective* export subsidies created by domestic support are increasing, lending unfair advantage to industrial country producers. Currently, cotton is not classified as receiving export subsidies. Its domestic and export prices in the United States and the European Union are the same—and those prices are less than half the cost of production. Similar differences exist in many other products, a gap that will increase as industrial countries move from protection through border barriers to support through coupled or partially decoupled subsidies.

Success in the Doha Round requires reductions in agricultural protection

To be meaningful for the world's poor, the Doha Round must bring reductions in agricul-

tural protection around the world. The benefits of global liberalization in agriculture—elimination of all border barriers and subsidies—are estimated to be very large for industrial and developing countries alike, topping $350 billion for the world. With liberalization, agricultural production would marginally shift from North to South, and the highly depressed world prices for many commodities would increase: 10–20 percent for cotton, 20–40 percent for dairy products, 10–20 percent for groundnuts, 33–90 percent for rice, and 20–40 percent for sugar (Beghin and Aksoy 2003). The impact of these price changes on low-income net importers would be small and manageable. To date, however, many of the proposals designed to elicit consensus on agricultural reform are modest. The average applied tariffs in the Quad countries would be halved at best under such proposals. Tariff peaks would remain above 100 percent for many countries. The outcomes for developing countries are even less significant. For most of them, the cuts required by one prominent proposal would leave their bound tariffs above their current applied rates, and tariff escalation and peaks would still be very high.

A serious agreement to reduce border protections would produce benefits for the world's poor that far exceed those that can be anticipated from present levels of development assistance. A first order of business is to create a more transparent and simpler trade regime in all countries by converting specific tariffs to ad valorem tariffs, eliminating minimum price regulations, cutting peak tariffs, changing the structure of TRQs so they increase over time, and introducing a transparent system of reallocation to more efficient producers. Rich countries should phase out export subsidies and subsidies that encourage overproduction, both of which are directly prejudicial to poor farmers around the world.

These reforms would also make the agriculture in industrial countries more efficient, environmentally sustainable, and more supportive of the small family farms. The experience of New Zealand, the only OECD country to reform fully, clearly demonstrates that agriculture without support can be more dynamic and efficient.

Finally, along with greater market access, low-income countries need help in eliminating behind-the-border barriers, especially the segmentation of their rural markets. Those markets should be linked to wider markets at home and abroad (box 3.1).

Poverty, rural households, and trade in agriculture

Agriculture is the livelihood of the world's poor

Growth in agriculture has a disproportionate effect on poverty because more than half of the population in developing countries resides in rural areas.[1] Some 57 percent of the developing world's rural population live in lower-middle-income countries; 15 percent in the least developed countries (LDCs).[2] Although most of the world's poor countries are in Sub-Saharan Africa, they account for about only 12 percent of developing world's rural population, whereas Asia accounts for 65 percent.

Using the $1-a-day measure of poverty, most of the world's poor live in India, China, and other lower-middle-income countries (table 3.1). National poverty data—which allow separation of rural and urban household information but are not available for all countries—yield results that are very similar to those obtained using the $1-a-day measure. They show that four countries—India, Bangladesh, China, and Indonesia—account for 75 percent of the world's rural poor. It is in Asia, therefore, that rural income growth will have the greatest impact on rural poverty.

Poverty is more common in rural areas

In countries for which separate rural and urban income data are available, 63 percent of the population, and 73 percent of the poor, live in rural areas. This is true for all regions.

A high incidence of rural poverty is found in all developing countries, whatever their level of income. More of the population is poor in low-

Box 3.1 The impact of national trade integration and reform on poverty

Poverty in rural areas of low-income countries is closely correlated with distance to local and national markets. In addition to geographic distance, the concept of distance to market includes various costs of moving goods to and from markets.

Case studies in Armenia, Malawi, and Nepal show that reductions in transportation costs bring strong gains in household welfare for individual farmers. Among these households, the poorer ones benefit disproportionately because transportation costs make up a larger percentage of their household expenditures.

Case studies in Ethiopia and Guinea reveal that many of the poor will be left behind by trade reform if no improvements are made in domestic markets. In Ethiopia, for example, 80 percent of the poor would benefit from freer trade under conditions of full market participation and price transmission, but only 55 percent would benefit without these conditions. Without improvements in the functioning of local and national markets, economic gains for the poor may reach only one-fourth of their potential.

A case study in Madagascar illustrates that improvements in trade policies may not be sufficient to restore sustained growth in the agricultural sector without better transport infrastructure and other reforms. In Madagascar, where poverty is closely related to remoteness, defined to include lack of infrastructure and access to basic services, integrating the poor into regional markets and the national economy will make a real contribution to increasing their incomes. In the absence of integration, economic growth will tend to benefit those who are already favored.

Source: Kudat, Ajwad, and Sivri (2003).

income countries, however, and in the LDCs the poverty rate for rural households reaches almost 82 percent (table 3.2). The rural share of the total number of poor households is declining with urbanization. Still, with current trends, the rural share of the global number of poor will not fall below 50 percent before 2035 (Ravallion 2000).

Most poor countries are very dependent on agriculture for household income. In Ethiopia and Malawi, for example, about three-quarters of household income is derived from agricultural activities, mainly subsistence farming. But cash income is also crucial (table 3.3). Whether derived from cash (export) crops or other sources, cash income allows farmers to

Table 3.1 Most of the world's poor live in rural areas outside the least developed countries

Distribution of poor in developing countries (1999)

	Population in millions (2001)			Percent rural	Percentage of world's rural population	Poverty headcount, under $1/day in 1999	
	National	Rural	Urban			(percent)	(millions)
Least developed countries	596	443	153	74	15	49	292
Other low income	839	501	338	60	17	26	218
Middle income[a]	1,435	478	957	33	16	8	114
China	1,272	805	467	63	27	18	226
India	1,032	745	288	72	25	35	358
Total	5,175	2,972	2,203	57	100	23	1,209

a. Excluding China and India.
Source: World Bank data.

Table 3.2 Rural poverty is higher in poorer countries

Share of national population and of poor living in rural areas (percent)

	Sample[a]		All developing countries
	Rural dwellers	Share of rural dwellers who are poor	Rural dwellers
Upper middle income	19	37	22
Lower middle income	64	72	61
Low income	65	74	60
Least developed	76	82	68
All developing countries	63	73	56

a. Sample consists of 52 countries for which separate rural and urban income data are available.
Source: World Bank data.

Table 3.3 Even in subsistence economies, cash is important

Percentage of total household income derived from various sources in rural areas, 1990s

	Ethiopia	Malawi	Mexico
Total agricultural income	77	76	24
Agricultural cash income	18	16	21
Subsistence farming	59	60	3
Transfers	16	7	13
Wages	3	8	42
Other	4	9	21
Total	100	100	100

Source: World Bank household data.

buy inputs—such as fertilizers—that increase food-crop yields, lowering the incidence of poverty and malnutrition.

The share of nonfarm income in rural households increases with a country's level of development. In Mexico, for example, the share of farm income in total rural income is much lower than in Ethiopia and Malawi. Incomes from farming are complemented by other sources, so that the direct impact of agricultural price and output variations have a much smaller impact on rural households. In industrial countries, when a broad definition of farm households is adopted, the share of farm income declines even further. Other sources of income include salaries and wages from other activities; investment income such as interest, dividends, and rents; and social transfers from health, pension, unemployment, and child-allowance schemes.

Farmers in industrial countries earn above-average incomes

In many industrial countries, the average incomes of farmers are higher than the national average, reaching almost 250 percent of average income for the Netherlands, 175 percent for Denmark, 160 percent for France, and 110 percent for the United States and Japan. In most other countries, the level of income is either equal to or marginally lower than the average income (OECD 2002d). In lower income OECD countries such as Greece, Korea, and Turkey, rural incomes are lower—around 75–80 percent of urban incomes.

As countries become wealthier, the share of rural household income from nonfarm sources rises. Off-farm income for major field crops in the United States, for example, is more than ten times greater than farm income and eight times greater than government payments (table 3.4) Government payments exceed what U.S. farmers make from the market in farming. In fact, most farms lose money from farming alone.[3]

Of agricultural subsidies, only half reaches farmers, and most goes to the richest

Agricultural protection in industrial countries helps the relatively better-off rural households—and it does so very inefficiently.[4] Ac-

Table 3.4 U.S. farmers earn less from farming than from other sources

Shares of U.S. farmers' income from various sources (billions of dollars)

Income source	Value
Farming	11.6
Government payments	14.7
Off-farm activities	122.7

Source: USDA, "Agricultural Income and Finance Outlook," September 26, 2002.

cording to OECD estimates, agricultural support policies deliver additional income to farm households at a rate of 50 percent *or less* of the amounts transferred from consumers and taxpayers for support purposes (OECD 2002e). In the case of market price support and deficiency payments, the share is one-fourth or less; for input subsidies, less than one-fifth. Only one-quarter of every dollar of producer support actually finds its way into the producer's pocket—the rest goes to input suppliers and owners of other factors of production (OECD 1999, De Gorter 2003). The most important outcome of these programs is that they lead to much higher land prices.

The largest farm operations, which generally are also the most profitable and the wealthiest, receive most of the benefits of support systems. In the United States, the largest 25 percent of farms have average gross farm receipts of more than $275,000 and average farm net worth of more than $780,000. They receive 89 percent of all support—in part because they produce a similar share of output. The remaining 1.6 million U.S. farms on average receive little support. Through the lens of household income surveys, the story is similar: At one extreme, farm households with an average income of $275,000 received payments averaging $32,000. At the other end of the spectrum, farm households with incomes averaging $13,000 received $2,200 in program payments.

In the European Union, where farm numbers and structures differ somewhat, the distribution of support is not markedly different. The largest 25 percent of farms have average gross farm receipts of more than €180,000 and average farm net worth of almost €500,000. They produce 73 percent of farm output and receive 70 percent of support. Farms of the next largest size have much smaller gross farm receipts, averaging just over €43,000, and average farm net worth of about €230,000. They produce 17 percent of output and receive 19 percent of support payments. The remaining 2 million EU farms produce little, receive little support, but have a sizeable average farm net worth. In Japan and Canada, the largest 25 percent of farms receive 68 percent and 70 percent of support payments, respectively.

In short, the subsidy programs prominent in current food and agriculture policy are not targeted to keeping small, struggling family farms in business but instead provide hefty rents to large farmers. Nor are current production-based policies effective in achieving their various other objectives (such as environmental sustainability and rural development). By increasing land prices they also lead to the creation of larger farms and the elimination of small family farms. Meanwhile, their unintended spillover effects on global markets, and on other countries, are large and negative.

At the most general level, it is probable that agricultural protection in rich countries worsens global income distribution. First, farmers in the North earn more on average than their own national averages. Second, the lion's share of farm aid goes to the largest and wealthiest farmers. At the other end of the global distribution spectrum, more of the poor tend to live in rural areas, and protection in rich countries tends to depress prices and demand for their goods.

International markets are important to sustained income growth in developing countries

When subsidies depress prices the impacts in poor countries can be severe. To illustrate the impact of commodity price changes, Minot and Daniels (2002) used household income data to estimate the potential impact of cotton price declines in Benin and tobacco price declines in Malawi, the major export crops of those two countries. Cotton prices have declined by almost 40 percent over the last few years. In Benin, a poor country, the impact of this decline in world cotton prices, if it were fully passed on to farmers, would reduce overall welfare in rural areas by 6–7 percent and that of cotton farmers by about 19 percent. The richest quintile of households, meanwhile, would experience a decline in income of 4 per-

cent. Thus this price change alone would increase the poverty rate in Benin by up to 8 percentage points (depending on the simulations), from 40 percent to 48 percent.

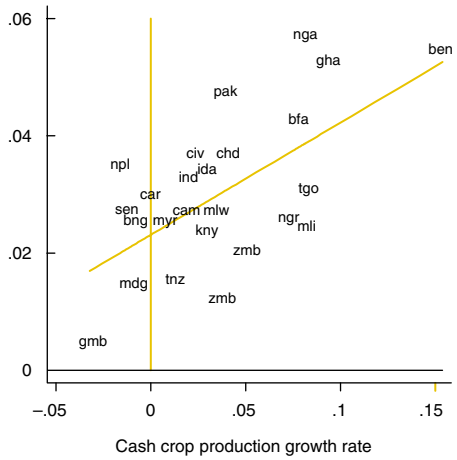
Tobacco constitutes about 80 percent of Malawi's exports. A 30 percent decrease in world tobacco prices over the last few years has reduced the income of small growers by an average of 8 percent. The poorest quintile has lost about 13 percent, the richest 7 percent. For a typical farmer, the annual net returns from tobacco, the country's most profitable crop, declined from $108 to $26 (Integrated Framework 2003). These rough estimates understate the overall impact of the price declines, however, because cash incomes allow farmers to purchase inputs, such as fertilizer and pesticides, that increase the yields for their subsistence crops and have a significant impact on their levels of poverty and malnutrition.

The importance of the global market goes beyond price changes. For countries with a relatively small urban population, agricultural exports can produce faster growth than can domestic market demand—however fast domestic demand might be growing. In such cases, the international market provides growth opportunities without the constraint of sharply lower prices, which often accompany an increase in agricultural production. Although food production for home consumption and the domestic market accounts for most agricultural production in the developing world, agricultural exports and domestic food production are closely related. Export growth contributes significantly to the growth of nonexport agriculture by providing cash income that can be used to modernize farming practices. For those leaving the farm, growth and modernization of agriculture create jobs in agricultural processing and marketing.

On balance, cash-crop income complements and enhances food production, particularly in poorer countries where opportunities to earn nonfarm income are more limited (figure 3.1) (Watkins 2003; Von Braun and Kennedy 1994; Minot and others 2000).

Figure 3.1 Countries that produce more cash crops also produce more food

Annual growth rates of food and cash crop production in 25 countries having agricultural output equal to at least 15 percent of GNP, 1980–2001 (percent)



Trade and export growth in agriculture

The last two decades were periods of very rapid growth in exports from developing countries to other developing countries and to the industrialized world (table 3.5). Growth in the world economy accounts for some of this export growth, but lower trade barriers, improved supply capabilities, and increases in specialization are more important. The rapid growth in exports was true both in manufacturing, where levels of protection have been reduced significantly, and in agriculture, where significant protection remains. Nevertheless, manufacturing export growth rates were much higher.

Agricultural trade makes up a growing share of trade among developing countries, but agricultural export shares to rich countries are stable

Although developing countries' exports accelerated during the 1990s, agricultural exports

Table 3.5 Manufacturing exports grew much faster than agricultural exports

Export growth rates (percent)

	World export growth rates		Developing countries' export growth rates					
			Total		Developing to developing		Developing to industrialized	
	1980–81 to 1990–91	1990–91 to 2000–01	1980–81 to 1990–91	1990–91 to 2000–01	1980–81 to 1990–91	1990–91 to 2000–01	1980–81 to 1990–91	1990–91 to 2000–01
Agriculture	4.3	3.6	3.4	4.8	3.6	7.8	3.4	3.3
Manufacturing	5.9	4.8	7.6	8.9	7.3	10.0	7.8	8.3

Note: Manufacturing exports are deflated by the U.S. purchasing parity index (PPI) for finished goods less food and energy. Agriculture exports are deflated by the U.S. PPI for farm products.
Source: COMTRADE.

Table 3.6 South-South exports in agriculture are rising as South-North export shares fall

Share of global agricultural and manufacturing exports by source and destination, 1980–2001 (percent)

	Developing countries			Industrialized countries		
	1980–81	1990–91	2000–01	1980–81	1990–91	2000–01
Agriculture exports	35.9	32.9	36.9	64.1	67.1	63.1
To developing	9.9	9.2	13.7	15.3	11.9	14.7
To industrialized	26.0	23.7	23.2	48.8	55.3	48.4
Manufacturing exports	19.3	22.7	33.4	80.7	77.3	66.6
To developing	6.6	7.5	12.3	21.7	15.2	19.0
To industrialized	12.7	15.2	21.1	59.0	62.1	47.6

Source: COMTRADE.

did not keep pace with manufactured exports, largely because agricultural export growth accelerated only to the other developing countries (table 3.6).[5]

Developing countries increased their share of global manufacturing exports from 19 percent in 1980–81 to 33 percent in 2000–01. Expanding trade among developing countries contributed to the gain in share, but higher exports to industrial countries also played a significant part. In agriculture, by contrast, the developing countries maintained, but did not expand, their one-third share of world agricultural trade over the last two decades. The steady decline in the developing countries' share of agricultural exports to industrial countries over the period was counterbalanced by an increase in their share of exports to other developing countries. In other words, the significant deceleration of nominal import growth in industrial countries, from 5.4 percent annually during the 1980s to 1.9 percent in the 1990s, was offset by the increase in import growth in developing countries, which increased from 3 percent annually to 6 percent.

Product trends differ

What accounts for the shift in markets for the agricultural exports of developing countries? Price changes alone do not appear to explain it (box 3.2). Static markets in industrial countries for traditional developing-country products such as coffee and tea probably contributed to declining import growth rates, as did the decline in GDP growth rates, combined with low elasticity of demand.[6]

To explore the phenomenon further, we separated agricultural exports into four subgroups. The first consists of mostly tropical, developing-country products such as coffee,

Box 3.2 Did agricultural exports slow down solely because of falling prices?

In nominal terms, export growth in agricultural products decelerated significantly during the 1990s. Can the slowdown be attributed to the price declines observed in the late 1990s? The existing price series for agricultural commodities have certain limitations. Most of the standard series are based on raw commodities that constitute a much smaller percentage of the global trade flows. In most cases they exclude seafood, fruits, and vegetables—now the largest trade items. For the purposes of this chapter the authors tried several alternatives to compensate for these limitations. The unit-value indices from trade data gave inconsistent results and were eliminated, leaving three series, one from the U.S. purchasing parity index (PPI) series for farm products, which includes all products, and two from raw commodity indices. One of the latter uses world trade weights; the other, developing-country export weights. The behavior of the three indices over the last two decades is shown in the table below.

	1980–81 to 1990–91	1990–91 to 2000–01
U.S. farm products PPI	4.7	–6.8
Raw commodities (world trade weights)	–8.3	–6.6
Raw commodities (developing countries' weights)	–22.7	–15.2

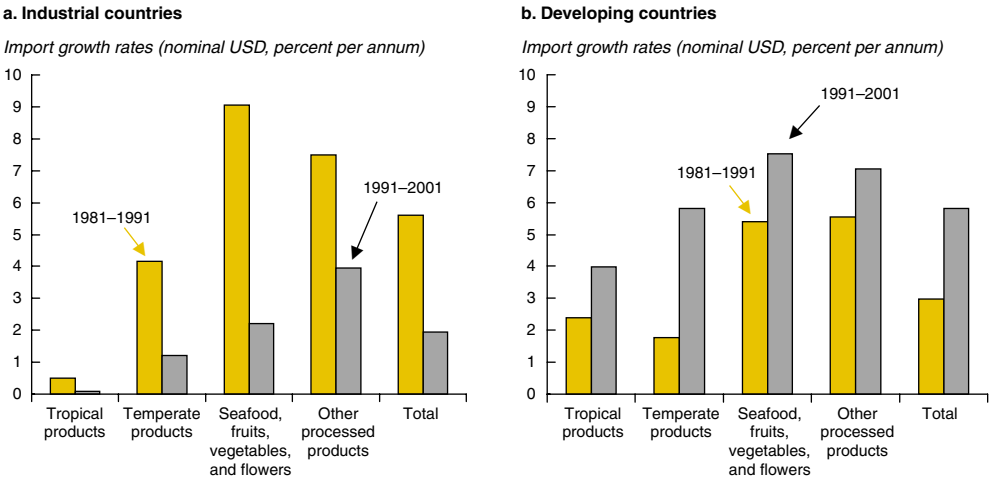
If the U.S. PPI is used, a small fraction of the nominal changes in trade flows in the 1990s can be attributed to price declines in the 1990s. Raw commodity indices show that the price declines were greater in the 1980s, and if they are used to deflate the nominal exports, the deceleration would be accentuated. For that reason, the U.S. food products PPI was used to deflate aggregate exports.

cocoa, tea, nuts, spices, textile fibers, and sugar and confectionary products. The second is made up of temperate products highly protected in industrial countries—meats, milk and products, grains, animal feed, and edible oil and oilseeds. The third category is the dynamic nontraditional products: seafood, fruits, vegetables, and cut flowers. The last category includes other processed agricultural products, such as tobacco and cigarettes, beverages, and other processed foods.

Import growth rates in industrial countries declined across all groups, while the opposite occurred in developing countries (figure 3.2). But changes in demand are only part of the picture.

In attributing causes to differential growth rates, it is important to consider the relative roles of demand growth and market-share gains in export growth. When growth in exports of manufactures (including processed food) to industrial countries is decomposed between demand and market share, only 21 percent of developing countries' export growth appears to have been caused by demand increases. The other 79 percent was caused by changes in market share (box 3.3). Limited raw-commodity information collected by OECD does not show any significant change in import-penetration ratios in OECD countries over the last decade (OECD 2001). Meanwhile, the developing countries gained market share in every manufacturing subsector—except food processing. The protection rates for food processing in industrial countries are extremely high—far above those of any other manufacturing subsector.

Figure 3.2 Import growth rates of nontraditional export commodities decreased in industrial countries but increased in developing countries



Source: COMTRADE.

The evolving structure of trade: toward nontraditional products with lower rates of protection

World trade has moved away from traditional export commodities to other categories of goods. This is true of both developing and industrial countries. The product groups that gained significantly between 1980–81 and 2000–01 are fruits, vegetables, and cut flowers (19 percent); fish and seafood (12.4 percent); and alcoholic and nonalcoholic drinks (8.7 percent). Although products in these categories tend to have high income elasticities, they also enjoy lower rates of protection in industrial and large developing countries. Product groups that showed significant declines during the period were grains (14.3 to 9.5 percent); coffee, cocoa, and tea; sugar and sugar products; and textile fibers—all of which are among the traditional exports of developing countries. The declines were caused by a combination of price declines, low demand elasticities, and—in the case of sugar, grains, meats, and milk—high rates of protection and expanded production in industrial countries.

While moving away from traditional exports and into expanding subsectors, developing countries also have marginally expanded their exports of temperate products (grains, meats, and milk)—but mostly to other developing rather than industrial countries. These important developments will require changes in how developing countries' agricultural trade is conceived and analyzed (figure 3.3).

Their trade gains have brought more developing countries up against rising food safety standards in the developed world. Meeting such standards has a cost—not just in compliance, but also in documenting that compliance. This cost can be repaid in the form of higher trade. Various mechanisms exist to help developing countries rise to the standards (box 3.4).

Industrial-country export structures also have changed. Exports of protected products have declined, whereas those of beverages, fruits, and vegetables have grown. These changes are discernible despite the fact that intra-EU trade is included in the global export data. One cause of the change is that greater domestic production of protected products has made many industrial countries more self-sufficient in those products, reducing trade.

As a group, developing countries lost export market share during the 1980s, but

Box 3.3 Decomposing export growth in manufacturing

Most market-share analysis has not looked into the shares of exports from developing countries in the consumption of industrial countries. Below are estimates of developing-country exports in the domestic consumption and production of Canada, Germany, Japan, and the United States, which together absorb about 70 percent of developing countries' manufactured exports to industrial countries.

The table below shows the shares of exports from developing countries in the four countries' total absorption (demand) and the growth of exports from developing countries. Absorption is estimated as gross production minus exports, plus imports. Gross production data in the three non-U.S. countries have been converted to U.S. dollars at current exchange rates. Because the U.S. dollar appreciated significantly against the currencies of the other three countries in the late 1990s, this conversion underestimates domestic production and demand growth. It also overestimates the share of imports, which are denominated in U.S. dollars.

Demand change is estimated assuming a constant share of exports in domestic demand between the two time periods; that is, market shares do not change. The market share changes are then estimated as the difference between the actual export growth and the export growth under a constant market share.

Developing countries increased their share of industrial countries' manufacturing imports—largely by increasing their market share, 1991–99 (percent)

	Share of developing countries' exports in domestic demand			Export growth due to	
	1991	1999	Growth in exports from developing countries	Change in demand	Change in market share
Canada	4.51	7.64	117.25	28.16	89.08
Japan	2.24	4.38	95.04	–0.25	95.29
United States	5.10	9.04	169.42	51.99	117.43
Germany	7.44	8.91	18.31	–1.22	19.53
Total	4.46	7.63	110.90	23.38	87.52

Sources: UNIDO, COMTRADE. Using UNIDO and COMTRADE data, UNCTAD estimated these ratios until 1995. UNIDO's coverage in terms of gross production has become more limited since 1995.

The relationship between domestic demand growth in industrial countries and export growth from developing countries is relatively weak. Market share gains caused by the restructuring of global production are a much more powerful factor.

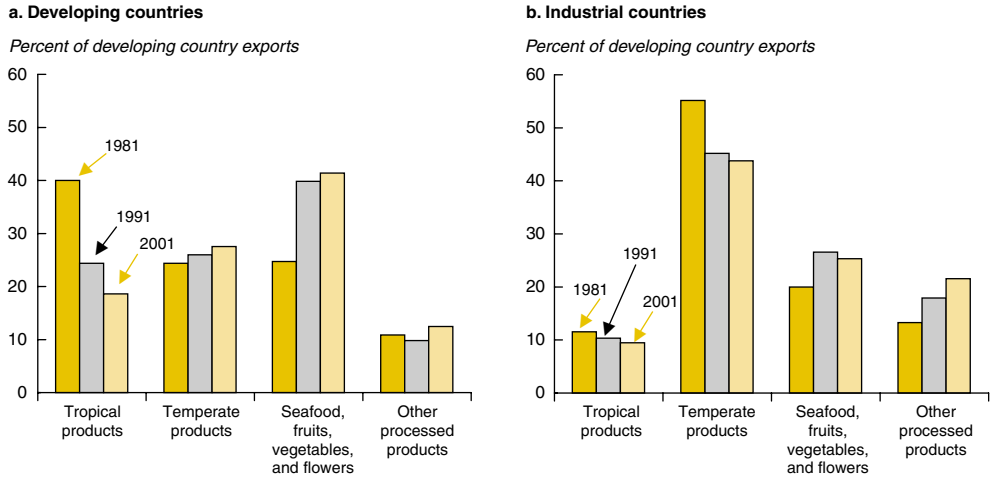
Between 1991 and 1999, exports of manufactures from developing countries to these four countries increased by about 139 percent, compared to about 60 percent for world trade, while the total increase in domestic demand was only 29 percent. The rest of the export growth was a result of the increases in market shares of developing country exports in industrial-country markets. A change of one percentage point in absorption shares during the decade would increase exports from developing countries by approximately 28 percentage points, equal to the total absorption growth over the decade.

The same conclusion holds true for the 15 three-digit ISIC subsectors that range from very capital intensive (rubber and glass) to very labor intensive (garments and footwear).

The only subsector in which demand growth was greater than the market share gains, and in which the developing countries lost market share, was food processing. In that subsector, the market share of developing countries declined from 2.42 percent in 1991 to 2.40 percent in 1999. Why? Food processing enjoyed the greatest protection of any subsector, and protection did not decline over the last decade. Because a large portion of agricultural exports are classified under food processing, protection of the subsector explains part of the deceleration of agricultural exports from developing to industrial countries during the 1990s.

Source: Aksoy, Ersel, and Sivri (2003).

Figure 3.3 Developing countries' exports of nontraditional products have surged, but industrial countries' exports have changed little



Source: COMTRADE.

reversed that trend in the 1990s (table 3.7). Modest expansion in the 1990s brought them back to where they had been in the early 1980s. Global gains were made by middle- and low-income countries, mostly to other developing countries. China is an exception to this trend, having increased its export shares in all markets. Even in the 1990s low-income countries continued to lose market share in their exports to industrial countries, making up the loss by expanding their export shares in developing-country markets. In tropical products, where global shares declined, low-income countries increased their shares to the other developing countries.

The LDCs lost export market share in both markets during both decades. Unlike other developing countries, they have not been able to make up their market-share losses in tropical products by expanding their shares in the growing subsectors: seafood and fruits and vegetables. Their only gains have come in seafood, and much of the expansion has come from industrial-country vessels fishing in their waters. In highly protected products, South-South trade has expanded, possibly as a result of regional trading arrangements.

Global agricultural protection: The bias against development

Progress in the Uruguay Round was more formal than real

Since the 1980s, two important developments have occurred in agricultural trade policy. First, most developing and a few industrial countries have made major reforms in their protection regimes involving unilateral and regional reductions in tariffs and quotas. For example, unilateral reforms in the 1990s effectively eliminated export taxation in most developing countries. Average tariffs have declined rapidly, while other import restrictions, such as foreign exchange allocations for imports, have effectively disappeared (World Bank 2001). Manufacturing tariffs dropped more than agricultural tariffs. In at least one way, agricultural protection expanded: Many middle-income countries began subsidizing their agricultural products.

Second, the Uruguay Round Agreement on Agriculture brought agricultural trade into WTO disciplines. Before Uruguay, agricultural products had no bound tariffs, and tariffs often were supplemented by nontariff measures such

Box 3.4 Food safety standards: From barriers to opportunities

Agricultural trade is shifting toward high-value, perishable commodities such as fresh fruits, vegetables, meats, and fish. With this change have come consumer concerns over food safety. In response, governments and private companies have developed a growing array of rules, regulations, and standards. Some fear that these standards will be used by high-income countries as a tool of trade protection.

Some developing countries have risen to the higher standards. Kenya's exporters send fresh vegetables and salad greens by air freight to major European supermarket chains. In that industry, food safety standards have accelerated the adoption of modern supply-management techniques and stimulated public-private collaboration (Jaffee 2003). Many developing-country suppliers, however, will not be able to meet the more stringent standards without technical advice, upgraded production and processing facilities, better enforcement of standards, and closer working relationships with importers in high-income countries.

Nearly all of the cases of allegedly protectionist use of food safety measures brought before the WTO have involved trade between developed countries over issues such as hormone residues in meat and genetically modified foods. Although some food-import bans have been heavily publicized, their application against developing countries is quite rare and typically has involved complementary rather than competitive products. However, some evidence suggests that developing countries employ safety regulations as a protectionist measure against other developing countries.

The available evidence suggests that most food-safety-related problems that developing-country exporters encounter are well within their capacities to resolve. According to data from the U.S. Food and Drug Administration, most detentions of developing-country food products involve labeling violations or very basic problems of food hygiene—and thus of quality assurance (see table). No firm can operate long without addressing such problems.

Detentions by U.S. Food and Drug Administration of imports from developing countries 1997 and 2001 (percent)

Reasons for contravention	Latin America and the Caribbean 1996–97	Asia 1996–97	India 2001
Food additives	1.4	7.4	7.4
Pesticide residues	20.6	0.4	1.9
Heavy metals	10.7	1.5	0.6
Mold	11.9	0.8	0.4
Microbiological contamination	6.2	15.5	15.3
Decomposition	5.2	11.5	0.3
Filth	31.4	35.2	26.4
Low acid canned food	3.6	14.3	4.1
Labeling	5.0	10.8	15.7
Other	1.7	2.6	27.8
Total	100.0	100.0	100.0
Total number	3,985	5,784	2,148

Source: USFDA.

Even for more complex food safety issues, developing countries have room to maneuver. An array of strategies exists to help them meet product and process standards for international markets. Especially in middle-income countries, the *good manufacturing practices* and *good agricultural practices* long demanded by overseas customers and consumers are now being demanded by discerning domestic consumers as well. They are well within producers' reach.

The European Union lays down harmonized hygiene requirements governing the catching, pro-

(Continues on next page)

Box 3.4 *(continued)*

cessing, transportation, and storage of fish and fishery products. Processing facilities must be inspected and approved by a specified authority in the country of origin. Countries whose local requirements have been found by the Commission to be at least as stringent as those in the European Union and for which specific import requirements have been established are placed on "List I" and enjoy reduced physical inspection at the border.

Between 1997 and October 2002, the number of countries achieving List 1 status increased from 27 to 72. More than half are low-income or lower middle-income countries; half of these are low-income African countries. Another 35 countries are on List II, including the United States (Henson and Mitullah 2003).

Food safety compliance costs can include the cost of adjusting production and processing facilities; the recurrent costs to implement food safety management systems; and the costs of certification, monitoring, and enforcement. Relatively few estimates are available on the magnitude of these costs. When a country is already exporting high-valued foods, compliance may require only incremental production changes and public-sector oversight. However, for other suppliers the costs of reaching internationally competitive levels may be high. The Bangladeshi shrimp industry invested an estimated $18 million in the latter half of the 1990s to upgrade fish-processing facilities and product-testing laboratories, and to make other changes in response to repeated quality and safety detentions on exports to the European Union and the United States. However, these expenditures have been rewarded with rapidly increasing (and better priced) shrimp exports—which totaled $296 million in 2000 (Cato and others 2000).

Standards can also be a barrier to trade. Consider the case of camel milk cheese exports to the EU. Tiviski SARL, a dairy processor in Nouakchott, Mauritania, developed a technology to produce "pate molle" cheese from camel milk. It obtained the milk from nomad milk producers who were very poor. In return, Tiviski provided the producers with cheap access to credit and vaccinated their animals to ensure a supply of healthy milk. The camel cheese, after transport and production costs, was priced at $10 per kilogram in the EU. After winning a prize at a trade fair, the cheese soon found its way into elite stores like Harrods in London and Fauchon in Paris. However, it proved to be difficult to find the correct tariff line for the product, and grouping it with "other dairy, cheese" exposed it to a much higher tariff than regular cheese. To make matters worse, the EU soon decided to abolish imports of camel cheese from Mauritania, arguing that the presence of "hoof and mouth" disease in Mauritania could be transmitted from camels to other livestock, even though there is no real evidence that camels are capable of spreading the disease. The EU then imposed another restriction: camel cheese could indeed be imported—but only if mechanical methods were used to obtain milk used in its production—an unworkable proposal for the low-income milk producers who were located miles away from major ports. Mauritania did not dispute this case at the WTO because of the sheer costs involved—costs that were not justified for exports of $3 million to $5 million worth of cheese per year. Catfish producers in Vietnam have had similar difficulties accessing the American market, initially because of labeling rulings (and then later because of anti-dumping judgments; see box in Chapter 2).

The emerging set of international and developed-country food safety standards present challenges for many exporters in developing countries. Concerted efforts to address basic hygiene and quality-assurance requirements and to provide relatively simple training for farmers could go a long way in ensuring compliance with most official food safety standards. In circumstances where compliance requires greater investment—both by the public and private sectors—partnerships between developed and developing countries and among developing countries may fill the bill. Beyond this, the public has to remain vigilant that standards do not become misused as instruments of protection.

Source: World Bank staff.

Table 3.7 Developing countries have shared unequally in export market gains

Export shares of food and agricultural products by income level (as percentage of total world trade)

	Exports to industrial countries			Exports to developing countries			Total exports		
Income level	1980–81	1990–91	2000–01	1980–81	1990–91	2000–01	1980–81	1990–91	2000–01
Industrial	48.8	55.3	48.4	15.3	11.9	14.7	64.1	67.1	63.1
Middle-income*	19.6	18.4	17.0	7.3	6.4	9.8	26.9	24.8	26.8
Low-income	5.2	3.4	3.4	1.4	1.3	2.0	6.5	4.8	5.4
of which LDCs	1.6	0.8	0.7	0.7	0.4	0.5	2.3	1.3	1.1
China	0.7	1.3	2.1	0.9	1.2	1.4	1.7	2.5	3.5
India	0.5	0.5	0.6	0.3	0.3	0.5	0.8	0.8	1.1
Total	74.9	78.9	71.6	25.1	21.1	28.4	100.0	100.0	100.0

* Excluding India and China.
Source: COMTRADE.

as import quotas or bans, quantitative restrictions, variable levies, and monopoly purchasing by state-owned or other companies. Import barriers were coupled with the widespread use of production-related subsidies, such as price supports, which often led (and still leads) to increases in production above the level of market equilibrium. Excess production had to be stockpiled or exported, sometimes with the help of further subsidies. With the intention of aligning agricultural trade rules with those applying to trade in other goods, the Uruguay Round negotiators agreed that all import barriers, other than those in place for health and safety reasons, should take the form of transparent tariffs. Before agreeing on tariff reductions, all border measures had to be converted into their tariff equivalents—a process known as "tariffication."

The conversion of nontariff measures into tariffs was generally done using the price-gap method—the gap being the difference between domestic and world market prices. After establishing the tariff equivalent of an import restriction, reductions were applied from bound tariffs. Developed countries reduced their tariffs by an average of 36 percent and a minimum of 15 percent over six years; developing countries by an average of 20 percent and a minimum of 10 percent over ten years. The agreed reductions were simple averages, not weighted for the volume of trade, so some countries made large reductions in tariffs that were already low—for example, achieving a 50 percent reduction by dropping a tariff from 2 percent to 1 percent—or in areas of low sensitivity, while making only the minimum reduction in sensitive product areas. The Round offered limited opportunities to make minimum import commitments for certain products instead of adopting tariffs on them. The minimum import option was taken by Japan, Korea, and the Philippines for rice, and by Israel for certain sheep and dairy products. (Japan has since tariffied rice imports.)

Once a tariff was established, bindings and reductions were negotiated. In cases where tariffs were high, or where quotas had been allowed in some imports, minimum and current market-access opportunities were also negotiated. The typical result was the establishment of a minimal tariff rate for a limited volume of imports—called a tariff rate quota (TRQ).

With the removal of nontariff measures, some countries worried that they would not be able to prevent surges in import volumes or falling import prices. To allay these concerns, negotiators agreed that a special agricultural safeguard could be applied to certain products.

The Uruguay Round yielded no meaningful reduction in protection in industrial countries. In many cases, in fact, protection may have increased as a result of so-called dirty tariffication (Nogues 2002, Ingco 1997). Continued protection has led to greater import substitution, while the geographical restructuring of production that occurred in manufacturing did not occur—at least not to the same de-

gree—in agriculture. Review of the experience to date with the new rules on market access, export subsidies, and domestic support indicates that the effects of implementation of the Uruguay Round Agricultural Agreement have been modest. The reasons include weaknesses in specific aspects of the agreement, such as high baseline support levels from which reductions were made. In some countries, including the United States, reforms undertaken before the negotiations were adequate to fulfill the new rules on reducing domestic support (OECD 2001).

Today, protection in agriculture takes different forms—tariff protection, subsidies, tariff peaks, TRQs, tariff escalation, and opaque tariffs. In reviewing these forms, the following section makes two fundamental points:

- First, the various forms of protection are often linked. For example, goods produced behind high tariff walls and with production subsidies often require export subsidies to be sold in the world market. That said, border barriers are more important than subsidies.
- Second, virtually the entire interlinked system of protection, even when used by other developing countries, is heavily biased against developing countries—and against the world's poor.

Import barriers are the most important instrument of protection

Although the conversion of nontariff barriers to tariffs during the Uruguay Round was an important step forward, average agricultural tariffs in most industrial and developing countries were and remain much higher than tariffs for nonagricultural products.

This section evaluates the agricultural trade regimes of the Quad countries (Canada, European Union, Japan, United States) and 25 developing countries in light of the Uruguay Round's objectives. Eight of the developing countries in the sample are large middle-income countries with significant agricultural sectors. Eight more middle-income countries are included to ensure regional balance. Eight lower-income countries round out the sample. Emphasis has been placed on the nature of tariffs because a key objective of the Uruguay Round was to lower tariffs and make them more transparent.

The tariff data in table 3.8 underestimate actual border protection. First, specific duties, which generally are higher than ad valorem rates, are not fully reflected in the simple av-

Table 3.8 Agricultural tariffs are higher than manufacturing tariffs in both rich and poor countries

Most-favored-nation, applied, ad valorem, out-of-quota duties (percent)

	Agriculture	Manufacturing	Percentage of lines covered in agriculture
Quad countries	10.7	4.0	86.7
Canada (2001)	3.8	3.6	76.0
European Union (1999)	19.0	4.2	85.9
Japan (2001)	10.3	3.7	85.5
United States (2001)	9.5	4.6	99.3
Large middle-income countries[a]	26.6	13.1	91.3
Other middle-income countries[b]	35.4	12.7	97.7
Lower-income countries[c]	16.6	13.2	99.8

a. Brazil (2001), China (2001), India (2000), Korea (2001), Mexico (2001), Russian Federation (2001), South Africa (2001), and Turkey (2001).
b. Bulgaria (2001), Costa Rica (2001), Hungary (2001), Jordan (2000), Malaysia (2001), Morocco (1997), Philippines (2001), and Romania (1999).
c. Bangladesh (1999), Guatemala (1999), Indonesia (1999), Kenya (2001), Malawi (2000), Togo (2001), Uganda (2001), and Zimbabwe (2001).
Source: WTO Integrated Database.

erages. Second, many products are subject to nontariff restrictions.

Because ad valorem equivalents of specific and other duties, where available, are much higher than the ad valorem rates, and assuming that the same tariff structure applies to Canada and Japan, which use non–ad valorem (NAV) rates on 25 percent and 15 percent of their tariff lines, the average tariffs for the two countries are seriously underestimated, lowering the Quad average. To show the degree of bias, the third column in tables 3.8 and 3.9 shows the proportion of tariff lines to which the averages apply.[7]

Excluding Canada, which has a large proportion of agricultural NAV tariffs without equivalents, average tariffs in agriculture are much higher than in manufacturing. The difference is especially pronounced in the European Union—19 percent in agriculture versus only 4.2 percent in manufacturing. Among the developing countries, the results are very similar, with a few exceptions, such as Brazil and Malaysia, where manufacturing tariffs are higher.

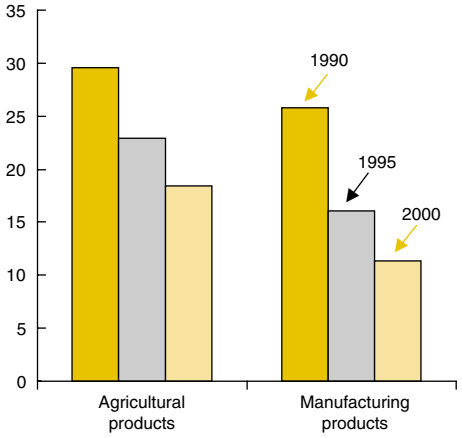
The developing countries in the sample have higher tariffs than the industrial countries, the highest being Morocco (64 percent), Korea (42 percent), and Turkey (49.5 percent). Indonesia (8.5 percent) and Malaysia (2.8 percent) have the lowest. Again, the average tariffs of countries that have a high percentage of NAV lines (Bulgaria, Russian Federation, South Africa, and Turkey) are seriously underestimated.

Tariffs are widely dispersed and have very high peaks. Industrial-country tariffs, although lower on average than those of developing countries, show significant tariff peaks, indicating high protection for specific products. The peaks reach almost 1,000 percent in the Republic of Korea, 506 percent in the European Union, and 350 percent in the United States.[8] Tariffs in many low-income countries have lower peaks and show less variance than those in many of the middle-income countries.

Compared to the slow reform in OECD countries, the changes in protection in developing countries were significant in the 1990s (figure 3.4). The average agricultural tariff declined from almost 30 percent in 1990 to about 18 percent in 2000, a decline of 35 percent. (The rates shown in the figure are simple averages of the average tariffs of about 50 developing countries.) Those reductions were complemented by the elimination of most ex-

Figure 3.4 Developing countries lowered tariffs on manufactured products more than on agricultural products

Average applied tariffs for agricultural and manufacturing products in developing countries, 1990, 1995, and 2000 (percent)



Source: TRAINS.

Table 3.9 Agricultural tariffs: High peaks and deep valleys

Tariff peaks and variance in selected countries; MFN, out of quota, applied duties (percent and standard deviation)

	Average tariff	Maximum tariff	Standard deviation	Percentage of lines covered
Canada	3.8	238.0	12.9	76.0
European Union	19.0	506.3	27.3	85.9
Japan	10.3	50.0	10.0	85.5
United States	9.5	350.0	26.2	99.3
Korea, Rep. of	42.2	917.0	119.2	98.0
Brazil	12.4	55.0	5.9	100.0
Costa Rica	13.2	154.0	17.4	100.0
Indonesia	8.5	170.0	24.1	100.0
Malawi	15.3	25.0	9.1	100.0
Morocco	63.9	376.5	68.2	100.0
Togo	14.7	20.0	6.5	99.9
Uganda	12.9	15.0	3.7	100.0

Source: WTO Integrated Database.

port taxes as well as import licensing and many other quantitative restrictions (World Bank 2001). Average tariffs in agriculture remain much higher than those in manufacturing, however, indicating that the general tendency in the 1980s—to protect the industrial sector—no longer holds. In their study of 15 developing countries, Jensen, Robinson, and Tarp (2002) concluded that the bias against agriculture in the 1980s no longer exists. The economy-wide system of indirect taxes, including tariffs and export taxes, significantly discriminated against agriculture in only one country. It was largely neutral in five, provided a moderate subsidy to agriculture in four, and strongly favored agriculture in five.

Subsidies underpin the system of border protection

An extensive network of subsidies has evolved to support agriculture, particularly in the rich countries. Protection takes three major forms.

- Border barriers such as tariffs and quantitative restrictions, designed to support prices in domestic markets, account for about 70 percent of total protection in the OECD countries.
- Production-related subsidies given to farmers under different schemes, called "direct support," usually take the form of direct budget transfers.
- General support for agriculture—through research, training, marketing, and infrastructure programs—usually is not included in the estimates of producer supports.

In addition, many countries have subsidies for their consumers, but generally these do not affect production and thus are not included in producer-support estimates.

The support accorded to OECD-country producers through higher domestic prices and direct production subsidies was $248 billion in 1999–2001 (table 3.10). Some two-thirds of the total—$160 billion—came from the border barriers described above or from market price support mechanisms. The remainder came in the form of direct subsidies to farmers. Another $80 billion in subsidies came from

Table 3.10 Most subsidies go to producers—and come from border protection

Agricultural support in the OECD countries, 1999–2001 (billions of dollars)

	United States	European Union	Japan	Emerging supporters[a]	European Union accession countries[b]	Other OECD countries	Total OECD
Where total support goes							
Consumers	21.4	3.8	0.1	0.7	0.0	0.2	26.2
General services	22.8	9.6	12.7	7.1	0.6	2.3	55.1
Producers	51.3	99.3	52.0	30.4	3.0	12.3	248.3
Total	95.5	112.7	64.8	38.2	3.6	14.9	329.6
Where producer support goes							
Corn	8.3	2.7	N[c]	1.7	–0.1	0.2	12.9
Meat[c]	2.6	34.0	4.1	3.4	0.5	2.8	47.3
Milk	12.4	16.7	4.9	2.7	0.7	4.7	42.1
Rice	0.7	0.2	18.0	7.6	N[c]	–0.2	26.4
Wheat	4.9	9.5	0.8	0.9	0.3	0.9	17.3
Other	22.3	36.2	24.1	14.1	1.9	3.6	102.2
Where producer support comes from							
Domestic measures[d]	32.6	38.5	5.0	4.4	1.4	6.3	88.2
Border measures[e]	18.7	60.9	47.0	26.0	2.0	5.7	160.1

a. Includes Korea, Turkey, and Mexico.
b. Includes Czech Republic, Hungary, Poland, and Slovak Republic.
c. Beef and pork.
d. Direct payments to producers.
e. Tariffs and tariff equivalents of other border measures.
Sources: OECD (2002) and authors' calculations.

Table 3.11 Subsidies account for a large share of farmers' revenues

Percentage of farm-gate prices attributable to border protection and direct subsidies, 1986–2001

Area	Market price support (border protection)[a]			Direct subsidies[a]			Total producer support (estimate)[a]		
	1986–88	1995–97	1999–2001	1986–88	1995–97	1999–2001	1986–88	1995–97	1999–2001
OECD	48.2	28.2	31.3	14.3	13.3	17.2	62.5	41.5	48.5
European Union	65.3	28.3	34.3	10.5	20.4	21.7	75.8	48.8	56.0
Japan	145.4	131.7	138.1	16.8	13.0	14.7	162.1	144.7	152.9
United States	16.0	7.5	10.8	18.3	7.4	18.8	34.3	14.9	29.6
Eastern Europe	45.2	8.7	10.4	18.3	4.8	7.5	63.6	13.5	17.9
Australia and New Zealand	4.2	2.8	0.6	6.4	3.9	3.4	10.6	6.8	4.0
Other countries	53.1	42.6	46.3	11.1	12.8	12.2	64.2	55.4	58.5
Other industrial[b]	165.9	108.1	113.0	72.2	81.9	106.7	238.1	190.0	219.7
Other developing[c]	31.4	38.1	42.9	6.4	8.0	7.3	37.8	46.1	50.2

a. The denominator is total value of production at farm gate less market price support (both estimated at world prices).
b. Includes Norway, Switzerland, and Iceland.
c. Includes Korea, Turkey, and Mexico.
Source: OECD.

programs (such as food stamps) that directly benefit consumers ($26 billion) and from general services to agriculture ($55 billion), such as public investments in agricultural research and extension.

Of the subsidies, the share linked to income rather than production (known as "partially decoupled subsidies") increased from approximately 9 percent of total protection in 1986–88 to 21 percent in 2001. Major products that account for the bulk of support are grains, meats, milk, and sugar.

Protection rates for producers in the OECD decreased from 62.5 percent in 1986–88 to 49 percent in 1999–01, measured as a percentage of gross agricultural output at world prices. The contribution of border barriers to total protection fell from 77 percent in 1986–88 to about 65 percent in 1999–01. After decreasing rapidly from 1986, overall protection rose again after 1997 in response to declines in world agricultural prices. Support to agricultural producers from border protection and direct subsidies increased farm-gate revenues in the OECD countries by almost 50 percent in 1999–2001 (table 3.11). But the persistence of high tariffs reduces the incentives to eliminate production subsidies and various inefficiencies globally.

Agricultural support tends to be countercyclical in rich countries, pushing price adjustments into the global market and accentuating price drops. The countercyclical movement of protection reflects the specific duties and TRQs that are triggered when prices fall.

The European Union and United States have reduced their overall levels of agricultural support. For example, in the European Union farmers' prices were 65 percent higher than international prices in 1986–88; this ratio decreased to 34 percent in 1999–01. During the same period, however, direct production-related payments to farmers increased from 10.5 percent to 21.7 percent, partially compensating for the decline in border barriers. Similarly, in the United States, domestic prices, relative to international prices, declined from 16 percent to 10.8 percent.

Aggregate support levels vary significantly among the OECD countries. Some (Iceland, Norway, and Switzerland) have very high levels of support. Australia and New Zealand have very low support levels. The European Union (on the high end) and Canada (on the low end) fall between these extremes.

The Eastern European countries made the most significant reductions in protection between 1986 and 2001—from 63.6 percent to 17.9 percent. Korea's protection levels have remained very high, with small variations. Mexico and Turkey, which started with low pro-

tection, increased it over this period, mainly through higher border protection.

The high domestic price differentials in table 3.11 indicate that domestic production is protected much more significantly than the unweighted average tariff rates shown in table 3.8 would imply. In Japan, for example, border protection raises market prices by some 138 percent, whereas the average tariff is just 10 percent and the maximum ad valorem tariff is only 50 percent. The difference can only be attributed to specific duties and TRQs, which are not included in the data set. For the European Union, the situation is similar. Border protection raises prices by more than 34 percent, well above the average tariff of 19 percent. In both areas, tariffs on many local specialties are very high. For example, in the European Union the average tariffs for grains, meats, and milk and milk products are 34.6 percent, 32.5 percent, and 54.6 percent respectively.

Specific duties produce hidden tariff increases in downturns

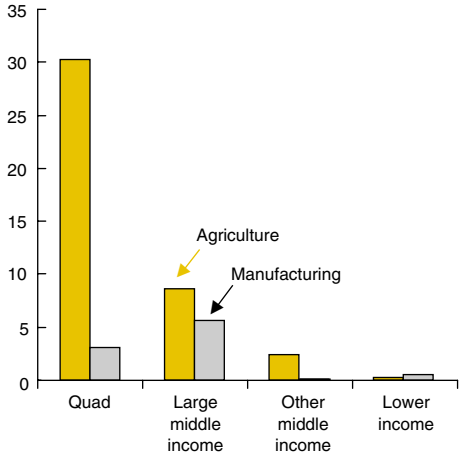
The Uruguay Round objective of providing greater transparency of protection levels through tariffication has not been fully realized, especially in the key industrial and some middle-income countries. First, many agricultural tariffs are still specific, compound, or mixed. In such cases it is almost impossible to estimate the real level of protection because it may change over time and with the relative price of imports. Even more important are the cyclical implications of such tariff structures: protection from specific duties rises as prices decline in the world markets; protection will be higher for lower-priced products from the developing countries.[9]

The proportion of agricultural tariff lines that carry specific, compound, and mixed duties is much higher in rich countries than in developing countries (figure 3.5).[10] This means, among other things, that the transparency of agricultural tariffs in developing countries is higher than in industrial countries—and significantly higher than in manufacturing. Of the 24 developing countries included in this sample, 11 have no NAV rates, 5 have them in fewer than 1 percent of their tariff lines, and 4 in fewer than 5 percent of tariff lines. Only 4 countries, all middle income, have a higher proportion of tariff lines with NAV rates. Within the Quad, Japan has specific, compound, or mixed rates in 15 percent of its tariff lines; Canada in 24 percent; the United States in 40 percent; and the European Union in 44 percent. The United States and European Union also have duties that vary according to the content of the products in 1 percent and 4 percent, respectively, of their tariff lines. Thus the difference in the transparency of tariff rates is consistent for most developing and industrial countries, and the biggest problem with nontransparency lies with the industrial and a few middle-income countries.[11]

Within the Quad, tariff structures show some differences. In the United States, almost all categories of products have NAV rates between 30 and 60 percent. In the European Union, certain product groups—such as beverages, grains, milk and milk products, and sugar and sugar products—have more than 90 percent of tariff lines under NAV. In many developing countries, NAV rates are clustered within a few product

Figure 3.5 Rich countries use non–ad valorem tariffs more often than do developing countries

Tariff lines containing specific, compound, or mixed duties, for agriculture and manufacturing by class of country (as percentage of all lines)



Source: WTO IDB.

Table 3.12 Specific tariffs are higher than ad valorem rates

Average applied, out-of quota, ad valorem and ad valorem equivalents of non–ad valorem tariffs in areas for which equivalents are reported (percent)

	Average ad valorem tariff	Average ad valorem equivalent of NAV rates	Percentage of lines containing NAV rates
Australia	1.2	5.0	0.9
European Union	10.6	35.2	43.6
Jordan	21.6	58.0	0.8
United States	8.1	11.7	40.4

Source: WTO Integrated Database (IDB).

groups. For example, in Malaysia NAV rates apply to tobacco and alcohol products; in Mexico on chocolate and confectionary products; and in Korea on nuts, spices, and sugar.

Only four countries in the sample report the ad valorem equivalents of their NAV rates (table 3.12). For those four, the average equivalents are much higher than the average ad valorem rates, suggesting that average duties for countries with a large proportion of NAV duties are seriously underestimated.

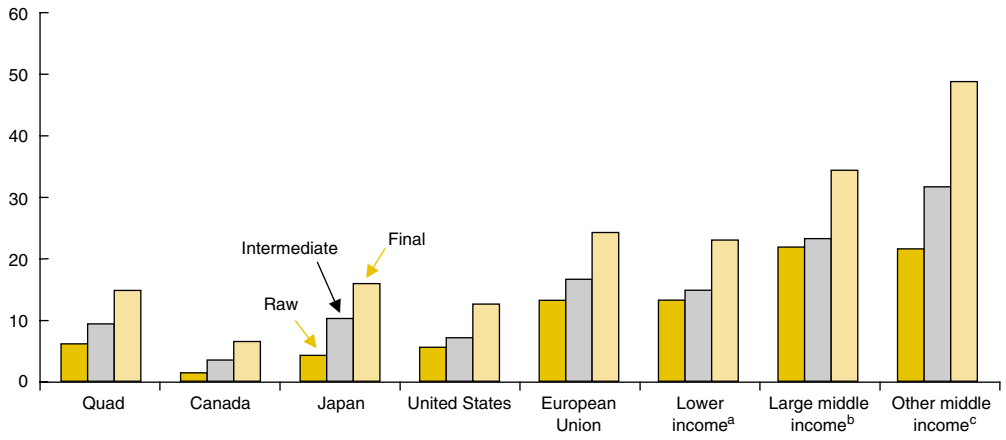
The specific duties are being used primarily as an instrument of disguised protection. First, as shown in table 3.12, the ad valorem equivalents of specific duties, where known, are higher than the ad valorem rates. Second, the proportion of specific duties increases with the degree of processing (figure 3.6). They are found most frequently in lines covering final products—those classified under food processing.

Tariff escalation is particularly harmful to development

Tariff codes that apply higher tariffs to semi-processed and fully processed raw materials are strikingly antidevelopment. By hindering

Figure 3.6 Throughout the world, tariff rates escalate with degree of processing

Tariff rates by area and stage of processing (percent)



Note: a. Bangladesh (1999), Guatemala (1999), Indonesia (1999), Kenya (2001), Malawi (2000), Togo (2001), Uganda (2001), and Zimbabwe (2001).
b. Brazil (2001), China (2001), India (2000), Korea (2001), Mexico (2001), Russian Federation (2001), South Africa (2001), and Turkey (2001).
c. Bulgaria (2001), Costa Rica (2001), Hungary (2001), Jordan (2000), Malaysia (2001), Morocco (1997), Philippines (2001), and Romania (1999).
Source: WTO Integrated Database (IDB).

Table 3.13 Tariffs rise with level of processing

Tariff escalations in selected product groups (percent)

	European Union	United States	Korea	Japan
Tropical products				
Coffee				
Raw	7.3	0.1	5.2	6.0
Final	12.1	10.1	8.0	18.8
Cocoa				
Raw	0.5	0.0	5.0	0.0
Intermediate	9.7	0.2	5.0	7.0
Final	30.6	15.3	12.3	21.7
Sugar				
Raw	18.9	2.0	a	25.5
Intermediate	30.4	13.8	19.3	11.6[b]
Final	36.4	20.1	50.0	a
Expanding commodities				
Fruits				
Raw	9.2	4.6	49.6	8.7
Intermediate	13.3	5.5	30.0	13.2
Final	22.5	10.2	41.9	16.7
Vegetables				
Raw	9.9	4.4	135.4	5.0
Intermediate	18.5	4.4	52.2	10.6
Final	18.0	6.5	34.1	11.6
Seafood				
Raw	11.5	0.6	15.6	4.9
Intermediate	5.1	3.2	5.8	4.3
Final	16.2	3.5	20.0	9.1

a. All lines are specific.
b. 56 percent of lines are specific.
Source: WTO Integrated Database.

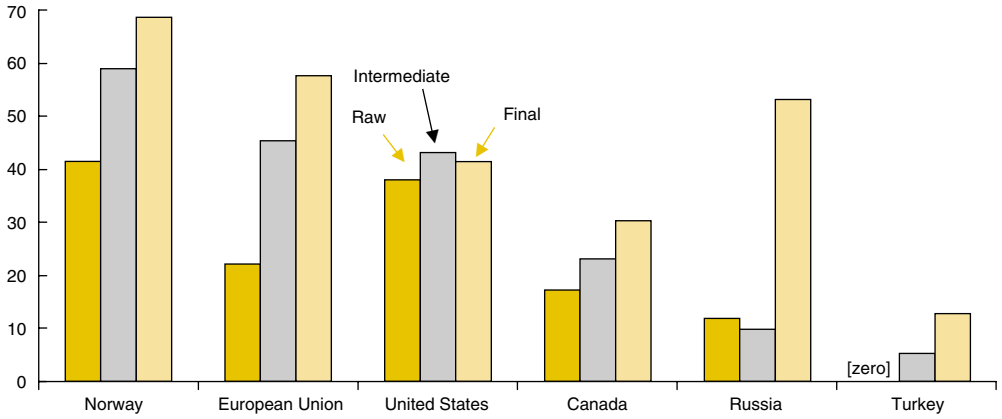
diversification into value-added and processed products, areas in which trade is expanding rapidly, such escalation directly penalizes investors in developing countries who seek to add value to production for export.

Tariff escalation has long been a feature of agricultural and food-processing trade and continues to be so (Golub and Finger 1979, Lindland 1997, and Gallezot 2003). Protection escalates with the level of processing in almost all countries and across all products (table 3.13). Almost all groups of countries have highly escalating tariffs (see figure 3.6), and the manufacturing component of agriculture and food processing has very high protection, explaining the developing countries' lack of penetration in food processing in industrial countries. Developing economies also apply systematic tariff escalation and high tariffs to the final stage of processing, suggesting potentially large gains if escalation were removed by developing economies (Rae and Josling 2003).

Tariff escalation is common in both traditional and new products. For traditional products (except sugar), raw stages are accorded extremely low tariffs, whereas extremely high tariffs apply to the final stages. A similar pattern appears in fruits and vegetables, for which the developing countries have found expanding markets and trade barriers are generally lower. The averages reported in table 3.13 mask very high peaks on individual products. In the United States, for example, the maximum tariff on final fruit products is 136 percent; on cocoa products it is 186 percent. In the European Union the maximum rates on processed fruits and vegetables are 98 percent and 146 percent; on cocoa products, 63 percent.

Figure 3.7 The proportion of tariff lines containing non–ad valorem duties increases with degree of processing

Tariff lines containing specific, compound, or mixed duties, by stage of processing (as percentage of all lines)



Source: WTO IDB.

Specific duties are applied more frequently to goods with higher degrees of processing. For example, in Canada and the European Union, the share of specific duties is 17 percent and 22 percent for raw materials but 30 percent and 58 percent, respectively, for final products. Among developing countries, the Russian Federation applies specific duties in 12 percent of its tariff lines for raw materials versus 53 percent of lines covering final products (figure 3.7).

Tariff rate quotas allow a little in—and then add a tariff bite

TRQs, designed to maintain some market access, have resulted in more complex tariff regimes. Although the number of tariff lines under TRQs is small, TRQs cover some of the main commodities produced in the OECD countries (figure 3.8). According to OECD data, almost 28 percent of domestic agricultural production is protected by TRQs. Rates range from a high of 68 percent in Hungary to 0 percent in Australia and New Zealand. The European Union and United States have 38 percent and 26 percent of their production protected by the TRQs.

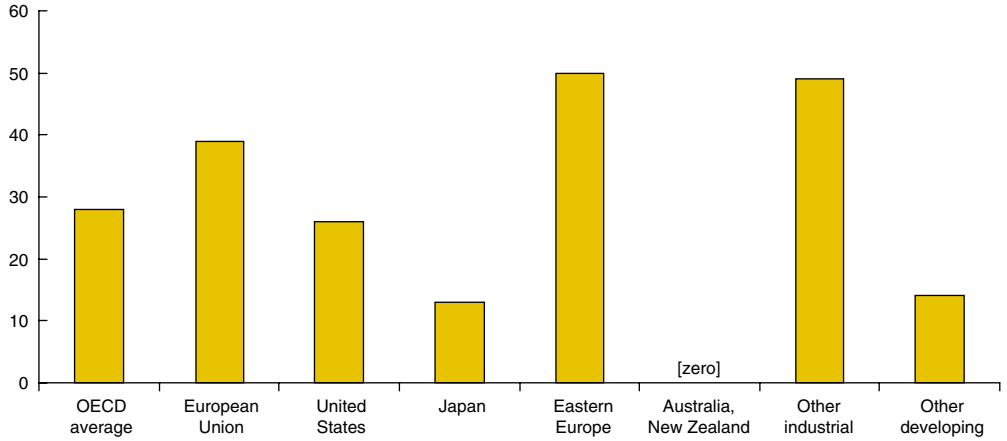
Export subsidies directly depress global prices

International trade rules have prohibited export subsidies on nonagricultural products since 1955. Export subsidies are still allowed in agricultural products, although these subsidies were capped and subjected to reduction commitments in the Uruguay Round. During 1995–98, WTO members used 42 percent of the budgetary expenditure and 64 percent of the volume allowed for export subsidies, with the European Union accounting for 90 percent of all OECD export subsidies.

Although their use has been reduced, export subsidies continue to distort world markets.[12] The Uruguay Round placed limits on export subsidies for individual commodities, but allowed some flexibility. Early in the implementation period, when world prices were high, usage was low and several countries carried forward their unused export subsidy credits to be used at a later date. At the same time, lower tariffs and the move toward direct production subsidies has and will continue to reduce the need for official export subsidies.

Figure 3.8 Tariff rate quotas protect a substantial portion of output in many industrial countries

Commodities covered by tariff rate quotas, expressed as a percentage of output



Source: OECD, Agriculture Market Access Database (AMAD).

Even if tariffs were eliminated altogether, current production subsidies for agriculture would cause the domestic and export price of many commodities to remain lower than their costs of production in industrial countries. By lowering production costs, production subsidies favor industrial-country farmers over developing-country producers, who do not receive direct subsidies. Cotton subsidies in the European Union and the United States are a clear case in point. Tariffs are zero, and domestic prices are the same as world or export prices (Baffes 2003, Watkins 2003). Yet in the United States in 2001 production subsidies effectively increased the prices farmers received (or reduced their costs of production) by 51 percent, leading to increased production and depressing the global price. At the same time, export prices for U.S. wheat, corn, and rice were 58, 67, and 77 percent of their costs of production (Watkins 2003).

Decoupling subsidies from production would reduce such distortions. To fully decouple subsidy payments, the definition of decoupling must make it clear that the payments are independent of production decisions (box 3.5).

The development tale of five commodities: sugar, wheat, cotton, peanuts, and rice

The development consequences of high protection in industrial countries can be traced through the story of key commodities. Although the stories are different, they share common plots: high protection, regressive subsidies, and low prices that hurt poor producers all over the world (Beghin and Aksoy 2003).

Sugar is one of the most policy-distorted commodities in the world. The European Union, Japan, and the United States account for the bulk of OECD-zone support to sugar producers, which, at $6.4 billion, is approximately equal to developing-country exports. But other countries (Mexico, Turkey, Poland, and all almost all temperate-zone sugar beet producers) also provide significant support to their producers. High border barriers in combination with the subsidies keep domestic prices in the United States and the European Union about twice as high as the world market price.

High domestic sugar prices in the European Union, Japan, and the United States have encouraged high-cost, inefficient domestic pro-

Box 3.5 Decoupling agricultural support from production decisions

Decoupling subsidies from production is designed to support producers not on the basis of current output, input use, or prices, but on historical measures, thereby limiting distortion to production and trade. Debated since 1945, decoupling became a serious option with the passage of the U.S. Food Security Act of 1985, which reduced set-asides of farm land, public stockholding, and yield payments. The European Union restructured its Common Agricultural Policy in 1992, replacing some price supports with direct payments. Mexico reformed its price-support policies along similar lines with the introduction of the Programa de Apoyos Directos al Campo (PROCAMPO) in 1994. The United States then went a step further in the 1996 Farm Bill, replacing "deficiency payments" with decoupled support based on historical data. Turkey introduced a direct income-support program in 2001, aided in part by a World Bank adjustment lending operation.

Following a sharp decline in commodity prices in the late 1990s, the United States reintroduced deficiency payments in 1999—initially as emergency assistance and subsequently as countercyclical payments legitimized in the 2002 Farm Bill. Responding to the U.S. reversal, Mexico reintroduced price supports in 2002 by setting target prices similar to those in the United States.

The move to decoupled support is a step in the right direction. However, if governments wish to help farmers adjust to free markets—the avowed purpose of decoupling—a simple and minimally distorting way to do that would be to make a one-time unconditional payment to everyone engaged in farming or deemed in need of compensation. Short of that, decoupling mechanisms should exhibit the following characteristics:

No constraints on input use. Support to specific sectors should be in the form of taxpayer-funded payments and should not require production. Neither land, labor, nor any other input should be required to be in "agricultural use."

Government credibility. Eligibility rules should be clearly defined and not allowed to change. The time period on which payments are based should not change. Payments should not be increased. New sectors should not be added to the program. Updating baselines and adding crops results in a government credibility problem, making the decoupling policy inconsistent over time. As market conditions change, governments have discretion to change eligibility criteria and payment levels, leaving them unable to make and hold to a binding commitment. As farmers change their production decisions and apply pressure for changes in supposedly decoupled support programs, decoupling is in effect preempted.

Other programs. Every decoupling program instituted to date has left other support programs in place. Coupled programs tend to interact with the decoupled program, adding incentives to overproduce.

Time limit. Payments must not extend beyond a maximum number of years. The European Union and Turkey have no limit; the United States had one (at least implicitly) but violated it; Mexico's remains in effect. A time limit ensures that payments are transitory and for adjustment purposes only.

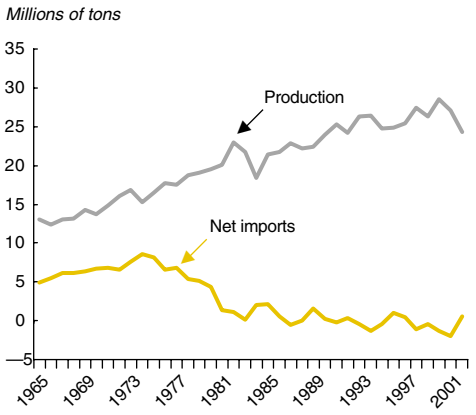
Reform within WTO. The level of payments in aggregate and per farm, and the terms described above, should be bound in the WTO so that governments can make credible commitments without backsliding.

Source: Baffes and de Gorter (2003).

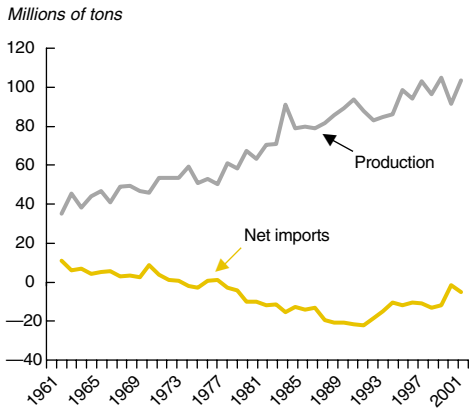
duction of sugar and sugar substitutes. At the same time, they have reduced overall consumption and gradually transformed these countries from net buyers of about half of the world's exports during the 1970s into net sellers in international markets in the 1990s. Meanwhile, the production and consumption of sugar substitutes (such as high-fructose corn syrups) increased to displace 10 million tons of sugar consumption—equivalent to one-third of world exports—since 1970 (Mitchell 2003). Consequently, the world prices of sugar today are below the costs of production of some of the most efficient producers. Many producers manage to keep exporting, either because they enjoy limited preferential access at high prices in

Figure 3.9 High protection of sugar and wheat has increased domestic production and reduced net imports

a. Production and net imports of sugar in the European Union, Japan, and the United States



b. Production and net imports of wheat in the European Union



Source: FAO.

industrial-country markets or because they subsidize their exports by selling at higher prices in their domestic markets. The world market has shrunk to a trade residual, with an estimated 80 percent of world production being sold in high-priced, protected markets (figure 3.9).

The benefits of sugar policy reform are substantial—particularly with multilateral reform. Presently, developed countries are protecting their sugar producers at great cost to themselves and to developing countries with export potential. A recent study of the global sugar and sweetener markets estimated that removing all trade protection and support would bring annual global welfare gains of $4.7 billion. In countries with the highest protection—Europe, Indonesia, Japan, and the United States—net imports would increase by 15 million tons per year. World sugar prices would rise about 40 percent, while prices in heavily protected countries would decline: in Japan by 65 percent, in Western Europe by 40 percent, and in the United States by 25 percent. Brazilian producers would gain the most from liberalization—about $2.6 billion per year—but this gain would be partially offset by higher consumer prices. Japan's net gain from lower consumer prices would more than offset lower producer prices on the 40 percent of sugar that is domestically produced. In the United States, producer losses would be some $200 million greater than consumer gains. Western Europe would show a net gain of $1.5 billion, with consumer gains of $4.3 billion exceeding producer losses of $3.3 billion. Exporting countries that presently enjoy preferential access to the European Union and the United States now collect some $800 million by selling into protected markets at high prices. However, the value of this preferential access is less than it appears, because many of these producers have high production costs and would not produce at all at world-market prices. The rise of world sugar prices following full liberalization would partially offset the loss of preferences and allow some preferred producers to compete. The net loss to preferred producers from full liberalization is estimated to total about $450 million per year (Borrell and Pearce 1999, Sheales and others 1999).

A similar situation occurred in EU *wheat* markets as high domestic prices encouraged production and reduced net imports from about 5 million tons in the 1970s to net exports

of 20 million tons in the early 1990s, before policy reforms reduced net exports. Subsidized wheat exports from the European Union continue to depress world prices. Wheat is one of the most protected products in the European Union; total production support averaged almost $10 billion annually during 1999–2001, corresponding to a protection rate of almost 50 percent.

World trade in *cotton* shows severe policy distortions, but, unlike sugar, the distortions come through producer support rather than from border measures such as tariffs and quotas (Baffes 2003). The United States provides the greatest support to its producers—$3 billion annually. The European Union provides about $0.6 billion each year to its producers. Producer prices in the United States were 91 percent higher than the world-market price in 2001–02. In Greece they were 144 percent higher; in Spain, 184 percent higher. High-producer support encouraged U.S. cotton production to grow about 25 percent faster than world production after 1970, and EU production accelerated once Greece and Spain joined the (then) European Community in 1981 and 1986. While the United States and European Union were maintaining high support, several cotton-producing developing countries (especially those in Sub-Saharan Africa) undertook substantial policy reform to increase the efficiency of their cotton sectors. Price and export prospects of developing-country exporters—especially in Sub-Saharan Africa—would be greatly improved if support in developed countries were reduced or eliminated.

Removal of protection and support would cause a drop in production in the United States and European Union and thus boost prices. Simulations show that with full liberalization in the cotton sector—removal of trade barriers and production support, along with liberalization in all other commodity sectors—cotton prices would increase over the next 10 years by an average of 13 percent over the price that would have prevailed in the absence of reforms. World cotton trade would increase by 6 percent. Africa's cotton exports would increase by 13 percent. Uzbekistan would increase its exports by 5.8 percent and Australia by 2.7 percent, while exports from the United States would decline by 3.5 percent. Cotton production in the United States would decline by 6.7 percent; in the European Union, by 70.5 percent. In effect, cotton production in the European Union would fall back to levels that existed prior to the Common Agricultural Policy.

Groundnuts (peanuts) are one of the world's main oilseed crops. Widely cultivated in developed and developing countries, they provide livelihood and cash income to many poor farmers in the developing world, especially in Sub-Saharan Africa and Asia. In Senegal, for example, an estimated one million people (one-tenth of the population) are involved in groundnut production and processing. Groundnuts account for about 2 percent of GDP and 9 percent of exports. China is the world's largest exporter of groundnuts, followed by the United States and Argentina. Sub-Saharan Africa (where the major producers are The Gambia, Malawi, Nigeria, Senegal, South Africa, and Sudan) has lost ground in world edible groundnut markets, accounting for only 5 percent of the world market in 2001, compared to 17 percent in 1976. In the oil segment of the market, Senegal is the world's largest exporter. Governments in Sub-Saharan Africa taxed production until the early 1990s. These taxes, borne by domestic groundnut users and taxpayers, had an important domestic cost (Diop and others 2003).

Historically, world groundnut markets have been distorted by heavy government intervention designed to stimulate production through subsidies and price supports or to protect producers by controlling imports. China and India have price-control schemes and impose very high tariffs on imports. Since the mid-1990s, all major exporters have gradually liberalized their groundnut sectors, in part to fulfill their commitments under WTO agreements. Results are mixed, however, and trade in groundnuts remains heavily distorted. Both China and India have removed some import restrictions and allowed wider private-sector participation

in importing groundnuts. But tariffs on groundnut products remain very high in both countries; the removal of trade distortions by China and India is essential to successful reform of groundnut markets.

The U.S. groundnut policy, highly distorted by large subsidies and prohibitive tariffs between 1930 and 2001, was recently reformed, but with high and redundant tariffs still in place. The 2002 Farm Bill eliminated some unsustainable features of previous legislation (high support prices and production quotas) but introduced new distortions that have the potential to depress world market prices and subsidize producers (for example, through countercyclical payments and a price floor mechanism that becomes effective when world prices are low). Prohibitive tariffs of almost 150 percent remain.

Full trade liberalization would raise market prices by about 19 percent for groundnuts, 18 percent for meal, and 17 percent for oil. Because the current U.S. peanut program is mostly a domestic affair, liberalization of the U.S. market would not have a far-reaching effect on world prices or on exports of the poorest developing countries. As a bloc, the OECD countries would experience welfare losses after trade liberalization—moderate gains in the United States offset by losses in Canada, the European Union, and Mexico, which would lose from trade liberalization because, with few policy distortions in these markets, they would be penalized by higher world prices after liberalization.

Although the net world welfare gains of liberalizing groundnut markets are moderate, they are still significant for small agrarian economies such as Malawi and other West African countries. In China and India, gains to consumers would be partially offset by losses to producers under full trade liberalization. Specifically, buyers in India and southern China, where groundnuts and groundnut oil are heavily used in food, would reap significant gains from liberalization.

Liberalization of the value-added markets—oil and meal—would result in even larger welfare gains in African countries. The African countries modeled in our analysis (The Gambia, Malawi, Nigeria, Senegal, and South Africa) would experience aggregate net welfare gains of $72 million, with Senegal and Nigeria gaining most. The increase in world prices after trade liberalization would lead to a total gain for African groundnut producers of some $124 million in profits. These figures are sizable for small African economies. The rest of the world would experience a net welfare loss because consumers would face higher prices for groundnut oil.

Rice is the most important food grain in the world. Production and consumption are concentrated in China, India, and Indonesia. Consumers in low-income, food-deficit countries get 28 percent of their calorie intake from rice. The rice market is a mature market, with static demand in the North and demand in developing economies growing with demographics rather than income. Prospects for growth in trade therefore rely on policy reforms.

Tariff and related border protection is very high, averaging about 40 percent globally and rising to 200 percent in some markets. Total OECD-zone support is more than $26 billion, and in Japan support is a staggering 700 percent of production cost (at world prices). Tariff escalation is prevalent (from paddy to milled rice) in many countries, including the European Union, where the tariff on milled rice is prohibitive, except for small preferential import quotas granted to a few countries. For example, the tariff on milled rice imports into the European Union is 80 percent, compared to 46 percent for brown rice. In Mexico, paddy rice enters with a 10 percent tariff, whereas brown and milled rice enter with a 20 percent tariff. This pattern of protection depresses world prices for high-quality, milled long-grain rice and discriminates against the milling sectors of exporting nations such as Thailand, the United States, and Vietnam (Wailes 2003).

Global reforms—elimination of all border barriers and support—would lead to average price increases of about 33 percent, rising to 90 percent for medium- and short-grain rice. Producers in Cambodia, China, and Vietnam would be the main beneficiaries, along with

consumers in most of high-income Asia. Since most production is by small farmers in these countries, the gains would be very pro-poor as well. Following trade liberalization, net rice importers could be negatively affected by the resulting world price increase wherever the consumer prices rise following reform; that is, wherever the current ad valorem tariffs are lower than the potential world price increase. Estimates show that in Indonesia, Nigeria, and the Philippines, three large rice importers, consumer prices would fall after the reforms.

The tale of these five commodities has an important moral for those who would promote development. Cutting back on subsidies and other protection that primarily benefit relatively wealthy farmers in rich-country markets (and in some cases middle-income country markets) can open up opportunities for poor farmers in Africa, Asia, and Latin America. The effects on incomes in poor countries would be strong and immediate. In many cases the gains would be a substantial order of magnitude greater than development assistance to these same countries.

Proposals for reforms in the Doha Round

The potential gains for developing countries are large

One way to evaluate reform proposals is to compare their likely results with the potential gains from full removal of all barriers, which would yield global welfare gains of $400–900 billion, more than half of which would go to developing countries. If all trade barriers were dismantled, agriculture and food would account for 70 percent of these gains. A major share—60 percent—would derive from reforms in developing countries. The largest gains are to be had from tariff reforms in agriculture undertaken in a context of a global reform program.

Can agriculture adjust to new prices? The experience of New Zealand, which implemented the most far-reaching reforms of any industrial country, suggest that the answer is yes. New Zealand has almost no tariffs or subsidies in agriculture. Its reforms have led to higher productivity and growth rates, no changes in rural population, and a much more dynamic and environmentally sustainable agricultural sector (box 3.6). Particularly noteworthy is the fact that New Zealand farmers are able to compete effectively on world markets, expanding their share of world trade in dairy products from 6.7 percent in 1985 to 9.5 percent in 2001.

Harbinson splits the difference

Despite the large potential gains from liberalization, many of the proposals for the Doha Round are modest. Proposals range from the Japanese suggestion to impose an "average cut," which can be predicted to have little effect, to the more ambitious proposal of the Cairns Group.

The Harbinson proposal, named for Stuart Harbinson, the chairman of the WTO negotiating group on agriculture, takes the middle ground (DRIFE 2003).[13] For industrial countries, it proposes average tariff cuts of 60 percent on bound tariffs above 90 percent, a 50 percent cut on bound tariffs between 15 and 90 percent, and a 40 percent cut on bound tariffs below 15 percent.[14] For the developing countries and for products not considered strategic, it proposes average tariff cuts from bound rates of 40 percent for tariffs above 120 percent, a cut of 35 percent for tariffs between 60 percent and 120 percent, a cut of 30 percent for tariffs between 20 percent and 60 percent, and an average reduction of 25 percent in tariffs below 20 percent. These cuts would be implemented by industrial countries in equal installments over five years and over ten years for developing ones (WTO 2003). The Harbinson cuts look significant—some groups have called them radical—but their impact, depending on how they are interpreted, would not be as significant as first appears.

For the industrial world, the results would depend on whether countries achieve the average cuts by reducing lower tariffs by greater percentages (which would have relatively little effect) or cut all tariffs at the average rate. The "average cuts" called for under the Uruguay Round were interpreted loosely, with many

Box 3.6 Fewer subsidies, stronger agricultural sector

There is a strong belief among policymakers in OECD countries that trade reform in agriculture would destroy their rural communities and the agricultural sector. Yet, as the experience of one OECD country shows, protection and subsidies are not a necessary condition for the continued growth of the farm sector. Indeed, the removal of protection can be accompanied by faster agricultural growth and increases in productivity, achieved without a significant decline in the farming population or its standard of living.

Today, New Zealand has the lowest level of farm support among OECD countries—its producer support, estimated to be around 1 percent of the value of agricultural production, is primarily dedicated to research funding. This was not always the case. Producer support reached 33 percent of output in 1983, when almost 40 percent of the income of an average sheep or cattle farmer came from government subsidies. Yet, these policies were clearly unsustainable, as the loss of preferential access to the British market and an escalating inflation spiral led the government to abandon most payments to agricultural producers.

Government deregulation was quick and substantial. Nearly all subsidies were removed in 1984. The sectors involved included wheat, egg, milk, potatoes, honey, raspberries, hops, tobacco, apples, poultry, pork, and other meats. Altogether, almost 30 different production subsidies and export incentives were abolished (Bell and Elliott 1993). The government made only limited efforts to soften the impact on farmers; those who decided to exit the agricultural sector received a one-time "exit grant" of approximately two-thirds of annual income.

At the time, estimates pointed to 8,000 farms (10 percent of total) going out of business, prompting widespread opposition to the government's plan. However, only 800 farms exited the market, and those that remained became more dynamic. Since 1986–87, output of the agricultural sector has grown by more than 40 percent in constant terms. The share of farming in GDP rose from 14.2 percent in 1986–87 to 16.6 percent in 1999–2000, and growth in the farming sector has outpaced economic growth of New Zealand as a whole. The reform also prompted greater competition and lower input costs among suppliers, and brought environmental benefits through reduced waste. Although land values fell during late 1980s and early 1990s, they recovered during the later part of the decade. The share of rural population has remained constant since the abolition of subsidies.

Some of the most impressive effects of subsidy removal have been the changes in agricultural productivity. Since 1986, the annual average rate of productivity growth in agriculture has reached 5.9 percent, compared with 1 percent prior to subsidy abolition. The fact that total lamb production has increased while the number of sheep has declined by 29 percent attests to the increased efficiency of the sector. However, some studies, such as Morrison Paul, Johnston, and Frengley (2000), have questioned the positive effects of the reforms on productivity. The latter, using an unbalanced panel of 32 farms between 1969 and 1991, found that agricultural reform caused changes in the composition of output—a shift out of wool and lamb and into beef and deer—but did not affect technical efficiency. On the other hand, work using aggregate data, such as Kalaitzandonakes and Bredahl (1994), has confirmed improvements in technical efficiency following the reforms.

Overall, the removal of support did not have a grave effect on New Zealand's farmers. Instead, the policy of liberalization created a more vibrant, diversified, and sustainable rural economy in New Zealand.

Source: World Bank staff.

countries reducing already-low tariffs by high percentages to avoid cutting higher tariffs significantly (see chapter 2, box 2.2).

For the developing countries, the key issue is reductions from the bound, not the applied, rates. Most developing countries have bound their tariffs at relatively high rates, but reduced applied rates to much lower levels.[15] If cuts were applied to the bound rates, such countries would get credit for past unilateral reforms, but the reductions would not lead to significant tariff reductions.

The Harbinson proposals would imply substantial tariff cuts in the United States and Eu-

Table 3.14 The Harbinson proposals could greatly reduce applied tariffs in the European Union and the United States

Tariffs in the European Union and United States before and after average reduction from applied tariffs (percent)

	United States				European Union			
	Before Harbinson		After Harbinson		Before Harbinson		After Harbinson	
	Average	Peaks	Average	Peaks	Average	Peaks	Average	Peaks
Raw	5.5	350.0	2.7	140.0	13.2	131.8	6.9	52.7
Intermediate	7.1	159.3	3.8	63.8	16.6	284.8	8.3	113.9
Final	11.7	180.8	6.2	72.3	26.8	506.3	13.1	202.5
Overall	8.8	350.0	4.6	140.0	19.7	506.3	9.9	202.5

Note: The analysis excludes cigarettes and alcoholic drinks.
Source: WTO Integrated Database.

Table 3.15 The Harbinson proposals would not significantly reduce protection in the developing world—if reductions were taken from bound rates

Tariffs in selected areas before and after average reductions from bound rates (percent)

	Costa Rica		India		Jordan		Korea	
Bound rates	Average	Peak	Average	Peak	Average	Peak	Average	Peak
Before Harbinson	49.0	245.0	115.3	300.0	21.5	180.0	50.8	917.0
After Harbinson	33.8	147.0	72.3	180.0	14.9	108.0	33.2	550.2
Current applied rates	13.1	154.0	36.7	115.0	18.5	120.0	42.7	917.0

Note: The analysis excludes cigarettes and alcoholic drinks.
Source: WTO Integrated Database.

ropean Union at the end of the program under an optimistic scenario in which all tariffs were cut by the average rate from the applied rates (table 3.14).[16]

Under this optimistic scenario, the average effective tariffs in the European Union and the United States would be halved by the end of the reform process. EU tariffs would come down to about 10 percent from 20 percent, while U.S. tariffs would fall below 5 percent from 9 percent. Even so, the average agricultural tariffs in both areas would remain significantly higher than manufacturing tariffs—which stand at 4.2 and 4.6 percent respectively. Tariff peaks would remain above 140 percent in the United States and above 200 percent in the European Union.

For the developing countries, the optimistic scenario reduced the bound rates by the average cut. Four country examples are given in table 3.15 above. Cuts from bound rates do not significantly lower protection in most developing countries. In India and Costa Rica, at the end of 10 years, the Harbinson reform would leave bound tariffs significantly above applied rates. For Jordan and Korea, bound rates after 10 years would be marginally below the current applied rates. Because these results would hold for most developing countries, existing levels of protection in the developing world would not be significantly reduced under the Harbinson proposals.

Cushioning adjustment: The impact of reforms on net food importers

Serious reforms in global trade policies would lead to price increases for many products now protected. These price changes could lead to balance-of-payments problems for low-income developing countries that are net agricultural importers. Currently, the developing countries as a group—low- and middle-income alike—enjoy a trade surplus in agriculture. But many countries are net importers, and they could be negatively affected. Of 58

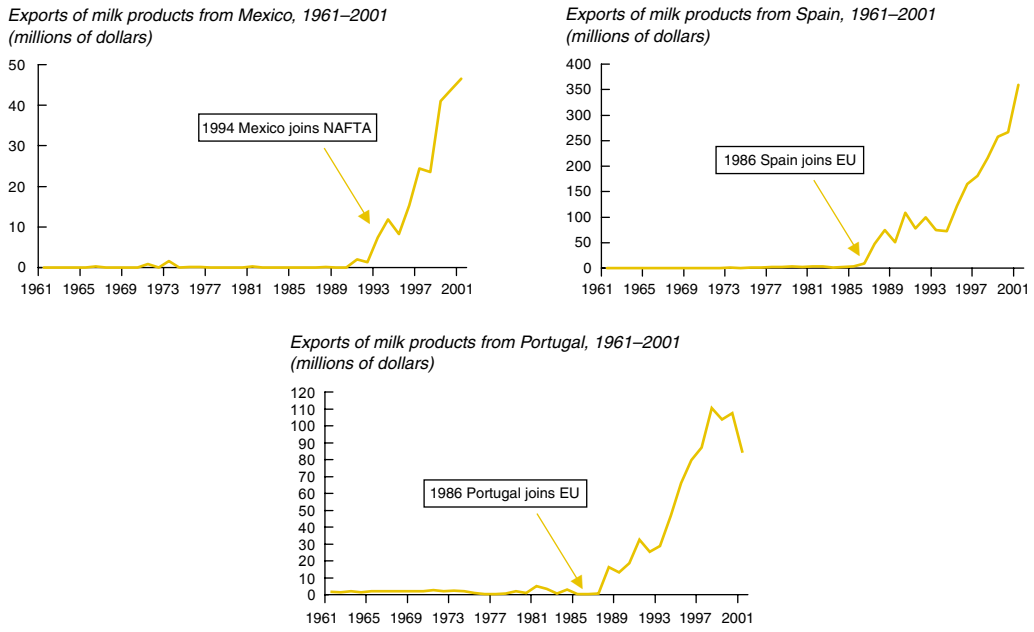
Box 3.7 The potential impact of real preferences

Given the high level of agricultural protection in many industrial countries, the value of preferences should be very high and should lead to high rates of export expansion in the countries that receive them. After Spain and Portugal joined the European Union, and after Mexico joined NAFTA, exports rose dramatically, especially in highly protected milk products (see figures below).

Milk and milk products are the most protected of all commodities, and, at $42 billion, they have the highest level of OECD support. However, this highly protected subsector responds similarly to other protected sectors such as grains and meat products. Joining NAFTA or the European Union implies more than simple preferential access—for example, membership in a trade bloc offers a more secure and predictable environment for investment than is usually provided by unilateral preferences—but the experiences of Mexico, Portugal, and Spain illustrate the potential response of many developing countries if they were given free access with few other restrictions.

Source: COMTRADE.

Exports of milk products shot up after Mexico, Spain, and Portugal joined regional trade blocs



countries classified as low income in 2000–01, 29 were net importers; of 89 classified as middle-income, 51 were net importers.

Among the middle-income countries, the total net imports of the net importers were almost $56 billion; 46 percent of the imports went to high-income, industrialized developing countries such as Hong Kong (China), Republic of Korea, Singapore, and Taiwan (China). Another 35 percent went to the oil exporting countries—Algeria, Saudi Arabia, and the United Arab Emirates. Excluding these and small island states, Egypt and Oman account for 57 percent of remaining imports. Thus the impact of agricultural price increases on the middle-income countries would be limited, particularly as a proportion of their trade.

Among low-income countries, oil-producing Angola, Nigeria, and Yemen account for almost 32 percent of the total deficit. Twelve countries in conflict account for another 21 percent. Only 14 low-income countries are real net food importers; their total net imports were only $2.8 billion in 2000–01. In this group, three countries account for 80 percent of the net imports: Bangladesh, Pakistan, and the Democratic Republic of Korea. The rest of the low-income countries have a deficit of just $565 million, a small percentage of their trade. These countries would gain from price increases, because their exports are also predominantly agricultural, as well as from other aspects of a multilateral trade negotiation. Nonetheless, the international community should be prepared to provide assistance to countries to help them adjust to and take advantage of new trade opportunities.

Can tariff preferences substitute for reform?

Some have argued that the poor are not harmed by the protection practices of rich countries because the Quad countries are generous in granting trade preferences. To be sure, the levels of protection in industrial countries are moderated by tariff and quota preferences. However, as we saw earlier in this chapter, most of the poor live not in the least developed countries, which get deep preferences, but in Asia, which gets fewer preferences, if any. Thus deep preferences do not reach the majority of the world's poor living on less than $1 day. Aside from the LDCs, many of the countries that enjoy preferences are not among the world's poorest. For example, a significant portion of the EU's low-tariff sugar quota benefits Mauritius, the richest country in Sub-Saharan Africa. Half of the countries that benefit from U.S. sugar quotas are net sugar importers. Rules governing preferences are typically complex and cumbersome, preventing many producers from taking advantage of them (see chapter 6).

The United States is the only country that collects data on the effect and degree of use of preferences. Agricultural exports from all developing countries total about $25 billion; of that total, approximately $15 billion, representing mainly tropical products not produced in the United States, enters the country duty-free—here preferences have no effect. Of products in the GSP, most agricultural products with nonzero tariffs are not eligible for preferences—only 34 percent of imports covered by the GSP were eligible for preferences; only 26 percent received them.

Preferences are more generous in other, mainly regional, programs. U.S. preferences for Mexico and the LDCs are much more extensive than for the rest of the world, and the eligibility ratio is almost 100 percent. However, this measure reveals little about the actual coverage of these schemes because it records only products actually exported and not those that would have been exported if granted preferences or lower tariffs. For example, the total exports of agricultural products with nonzero rates from the 64 GSP countries come to no more than the exports of Mexico, which receives almost full preferences (table 3.16).

Tighter rules of origin also complicate preferences. For example, seafood imports under Europe's Everything But Arms preference scheme for least developed countries have stricter rules of origin than do its other preference programs, the GSP and Cotonou agreements. Similarly, the NAFTA agreement, the world's most extensive preferential trade regime, is associated with very detailed and product-specific rules of origin (box 3.8).

Although preferences may help some very poor countries, they are no substitute for multilateral reform that will benefit all the world's poor.

Summary: A pro-poor agenda for policy change

Realizing the development promise of the Doha Agenda will require the international community to tackle some of the most difficult problems of agricultural trade. Agriculture remains one of the most distorted areas of international trade, and those distortions impede development. A pro-poor program of trade reform would contain several important elements:

A reduction in the use of specific duties and greater transparency is necessary to bring

Table 3.16 U.S. trade preferences—a plethora of programs

U.S. trade preferences for agricultural products, 2002 (millions of dollars)

Country group (number of countries in group)	Total value (a)	Share of (a) for which duty is greater than zero (b)	Share of (b) for which no preference is available (c)	Share of (b) eligible for preference (d=b–c)	Eligible but not requesting preference (e)	Preference received (f=d–e)
ATPA (Andean) (4)	2,242.6	870.2	106.7	763.4	256.4	507.0
U.S. LDCs (40)	369.0	65.6	0.0	65.6	12.2	53.3
Non-LDC AGOA (15)	600.5	168.9	0.4	168.5	20.0	148.5
Non-LDC CBI (19)	3,005.3	1,391.3	0.7	1,390.6	10.8	1379.8
Jordan	1.2	1.0	0.1	0.9	0.1	0.8
Mexico	6,319.6	3,866.9	0.0	3,866.9	13.8	3,853.1
Other GSP countries (64)	9,769.6	3,662.0	2,408.5	1,253.6	300.6	952.9
Non-GSP developing	2,906.5	939.9	855.8	84.1	0.7	83.5
Total developing	25,214.3	10,965.7	3,372.1	7,593.5	614.6	6,979.0

Source: U.S. International Trade Commission.

Box 3.8 Rules of origin in preferential schemes are complicated—and often contradictory

Rules of origin are a key element in determining the extent to which countries are able to use the preferences available to them. EU rules of origin are product-specific and sometimes complex. For some products a change of tariff heading is required. Others must meet a value-added requirement. Still others are subject to a specific manufacturing-process requirement. In some cases these requirements are combined. For certain industrial products, alternative methods of conferring origin are specified—for example, change of tariff heading or satisfaction of a value-added requirement. Although clearly more flexible, such an approach is not available for any agricultural products. For many products the EU rules require a change of chapter, which is even more restrictive than a change of heading. In certain cases the EU rules provide for a negative application of the change of tariff classification by proscribing the use of certain imported inputs. For example, the rule of origin for bread, pastry, cakes, biscuits, and so on requires a change of tariff heading *except* from any heading in chapter 11 (products of the milling industry). Hence, bakery products cannot use imported flour and still qualify for the preferential rates.

Although the European Union has sought to harmonize the processing requirements for each product, some of the general rules vary substantially, particularly with regard to the nature and extent of "cumulation" and the "tolerance rule." In this regard the rules of origin for the Everything But Arms scheme differ from those of the Cotonou Agreement—and also from those of other free-trade agreements. The Cotonou Agreement, for example, provides for full cumulation—inputs from other Cotonou countries can be freely used. The GSP allows more limited diagonal cumulation, which may occur only *within* four regional groupings: ASEAN, CACM, the Andean Community, and SAARC. The EU agreement with South Africa contains a general tolerance rule of 15 percent, whereas those with Mexico and Chile allow only 10 percent.

The rules of origin for the U.S. GSP scheme define a 35 percent value-added criterion that is common across all included products. In later bilateral trade agreements, such as the NAFTA and the recently signed free-trade agreement with Singapore, the United States has stipulated extensive and often very complicated product-by-product rules of origin which run to several hundred pages. In any event, the common rule applied in the GSP is that sensitive products are excluded from preferences.

Source: World Bank staff.

agricultural protection regimes closer to the tariff structures used for manufacturing. All specific, mixed, composite, and seasonal tariffs should be replaced with transparent ad valorem duties. Not only will this make the protection clear, but also it will eliminate discrimination against lower-priced exports from developing countries. Since tariff peaks are very high—and will stay high under the existing reform proposal—the peaks must be capped, with some arrangement for reducing tariff escalation on agricultural products.

The combination of tariff walls and domestic subsidies that annually channel some $248 billion to producers in the industrial countries must be dismantled, as must the high levels of protection in developing countries. Export subsidies must be further reduced and ideally eliminated. Discipline should also extend to food aid (see box 3.9). Finally, border barriers

Box 3.9 Food aid principles

Food aid recipients constitute a special group of low-income, food-importing countries with urgent needs arising from natural disasters, disease, and civil conflict. In June 2003, FAO identified 37 countries requiring food assistance, most of them in Sub-Saharan Africa, but others in Asia, the Middle East, Europe and Central Asia, and Central America and the Caribbean.[17] Overall, food aid accounts for a relatively small proportion of world trade, around 2 to 4 percent of traded cereal volumes during the period 1995– 2000.[18]

Though needed and effective immediately after disasters, food aid raises development and trade concerns when extended for longer periods or driven by supply. From a commercial standpoint, food aid may disguise export subsidies, or it may be used for developing commercial export markets or promoting strategic objectives. Furthermore, it may alleviate pressure on governments to reform policies and promote self-sufficiency.

When given in kind, food aid may be detrimental to local producers by lowering prices and by altering traditional dietary preferences. When distributed outside of normal indigenous commercial channels, as is usually the case, in-kind food aid also undermines the development of those channels and disrupts movement of food to the deficit areas from surplus regions in the country and neighboring countries. These events can then increase the likelihood and severity of future famine situations.

The trade aspects of food aid are regulated by many agreements and conventions. The Uruguay Round Agreement on Agriculture (URAA, Section 10.4) requires that food aid not be tied to commercial exports of agricultural products, that it accord with the FAO Principles of Surplus Disposal and Consultative Obligations, and that it be given under genuinely concessional terms. Nevertheless, the distinction between legitimate food aid and commercial interests is difficult to make. Thus, although the actual food aid budgets of the five largest donors in 1998 were $2.9 billion, Trueblood and Shapouri (2002) estimate the annual cost of an insurance scheme to provide food security for 67 needy countries would have cost less than $450 million per year from 1988 to 1999.[19]

Any WTO agreement should tighten the URAA provisions to facilitate genuine food aid while preventing the abuse of aid to circumvent export subsidy restrictions. Proposals include limiting food aid to grants only or to in-kind provision only in response to appeals from the United Nations or other appropriate international bodies. Donations in cash or channeled through international agencies would be most desirable.[20] Several principles, some beyond the purview of the WTO, should govern the provision of food aid:

- Food aid should be in the form of full grants and provided only for needs of well-defined vulnerable groups or in response to an emergency as determined by the United Nations.
- Cash aid should be provided unless in-kind food aid is a more appropriate response to the crisis (for example, because marketing channels are not functioning, in-kind aid can be better targeted).
- Food aid should never be used as surplus disposal by industrial countries.
- An impact assessment on marketing and local incentives should be undertaken when food aid is provided, and designs should be altered or mitigation should be undertaken if significant negative impacts are observed.

Source: World Bank staff.

against processed foods, which constitute the expanding part of agricultural and food trade, must be brought explicitly into the negotiations. Policies governing such products should be aligned with those governing other manufactured products. Reform of these policies will yield immense global benefits, especially in developing countries.

Decoupling subsidies can be positive. Reducing subsidies without lowering border barriers will have only marginal effects. Similarly, decoupling subsidies from direct production will have no effect if border barriers are not slashed. However, if border protection is reduced and subsidies decoupled from production requirements, the effects would be positive. To succeed, the decoupling programs must have characteristics that most past efforts have lacked (see box 3.5).

A global effort should be made on particular commodities with large development consequences. Certain individual commodities can have important effects on both developing and industrial countries. Sugar, cotton, wheat, and groundnuts all illustrate ways in which policy regimes—particularly in the OECD countries—can adversely affect developing countries when allowed to operate over long periods of time.

A program of development assistance to manage the adjustment to reform—particularly in food-importing countries—is a priority. The effects of tariff and subsidy reform are unlikely to affect most countries adversely, but the risk that a handful of countries may experience a net terms-of-trade loss cannot be treated lightly. Adjustment is not likely to be costly. Careful analysis shows that most net food importers are either high-income industrialized countries or major oil exporters. Many of the remaining net food importers have high tariff walls, so that reducing the tariffs could offset all or most of the increase in the global price. Nonetheless, such countries would lose the revenues associated with the high tariffs and so would experience some dislocation. Development assistance can also help countries take advantage of new trading opportunities that arise with trade liberalization.

Notes

1. Global poverty rates have been estimated on a consistent basis at $1 a day. Unfortunately, the poverty data are not separated for rural and urban populations. The only source of data where the poverty rates can be separated between rural and urban households is based on the national poverty rates that vary across countries, and the country coverage of these surveys is limited. Data used here cover the surveys for 52 country household surveys conducted between 1990 and 2001. The sample has a higher share of rural population than the overall average and both ratios are given in the tables for reference.

2. A comprehensive analysis of (a) protection indicators (tariff protection, nontariff barriers, and trade-distorting domestic policies such as market price supports and export subsidies), and (b) performance indicators (export structure and output) requires consistent information that is available only for the OECD countries and then only for some product groups.

Even for the OECD, the focus of data is more the protection of selected commodities than the overall trade regime. Thus, the measures covered by OECD data systems and the tariff data from the WTO are not fully consistent. Definitions of the agricultural sector also vary. The OECD database focuses on key raw commodities that have high protection; others exclude fisheries, which have become the biggest food trade item. Many agricultural items are covered under food processing and thus are classified under manufacturing rather than agriculture. Because processed foods constitute a growing share of consumption and trade, their absence from the data seriously understates trade in agricultural products. Finally, trade regimes in agriculture include complicated duty structures, extensive use of quotas and other restrictions, and complicated and changing subsidy schemes, all of which make it impossible to devise simple measures of protection and distortions.

Information for the developing countries is more limited and is only partially consistent. In the analysis presented in this chapter, partial data will be patched together to give a picture of agricultural trade regimes and export performance in industrial and developing countries.

For the purposes of this study, the agricultural sector is defined broadly to include fisheries and processed food products in all subgroups. For example, the seafood and seafood products subgroup includes raw, frozen, and processed seafood. This classification al-

lows us to include all stages of processing and to construct data series that are economically consistent. See annex I for the details of the coverage and definition of subgroups.

3. Of 20 categories of farms tracked by the U.S. Department of Agriculture, 12 lose money from farming alone. Most of the money-losing categories consist of smaller farms. USDA, Agricultural Income and Finance Outlook, September 26, 2002.

4. OECD (2002) The Incidence and Income Transfer Efficiency of Farm Support Measures.

5. From the trade data, it is very difficult to separate out food processing from raw agricultural trade. The definition used here treats food processing within agriculture and manufacturing excludes food processing.

6. Annual GDP growth in industrial countries slowed from 3.0 percent in the 1980s to 2.3 percent in the 1990s. In the developing countries, during the same period, annual GDP growth accelerated from 3.1 percent to 3.7 percent. Unless there was a significant change in income elasticities between the 1980s and 1990s, the changes in GDP growth rates are not large enough to cause the shift in import growth rates. But faster liberalization in developing countries can explain some of the shift.

7. Annex 2 Table 4 shows the ad valorem and non-ad valorem rates separately, as well as the proportion of the tariff lines to which the average applies.

8. In the European Union and United States, very high tariffs are all specific. The variance and peaks for Canada and Japan probably do not reflect the real peaks because specific duties are excluded.

9. For example, in the European Union the duties on wine are 13 Euros per hectoliter, which corresponds to about 12 cents per bottle. For wines that come from developing countries such as Bulgaria and Moldova, CIF prices per bottle are less than $1, which gives a tariff rate of about 12 percent, a high rate. For a $10 dollar bottle from California, the tariff rate would be just 1.2 percent, a very low one.

10. Individual country details are given in annex 2.

11. A recent OECD publication argues that the administration of ad valorem rates could cause difficulties for the customs administration; the developing countries have been administering such rates with much lower administrative capacity (OECD 2002a).

12. Additional distortion is produced by circumvention, possibly through the subsidy elements in export credits, export restrictions, and revenue-pooling arrangements in major products.

13. The Harbinson proposal presents the current status of agricultural negotiations on establishing numeric targets, formulas, and other 'modalities' for countries' commitments to increase market access, decrease export subsidies, and reduce distorting domestic support as mandated by the Uruguay Round Agreement on Agriculture. The proposal also spells out propositions on special and differential treatment and the role of nontrade-concerns.

14. These are average cuts, so the actual cuts in each line could be lower.

15. This is also true of many industrial countries but the difference between the bound, and applied rates is much smaller.

16. The European Union and United States were selected because there are tariff equivalents for the specific duties. The data for the European Union is for 1999, the last year for which the tariff equivalents were available.

17. http://www.fao.org/docrep/005/y9643e/y9643e04.htm

18. http://www.foodgrainsbank.ca/downloads/fjfa_foodaid.pdf

19. Trueblood, Michael, and Shahla Shapouri. 2002. "Safety Nets: An Issue in Global Agricultural Trade Liberalization." *Agricultural Outlook* (Economic Research Service/U.S. Department of Agriculture). March. http://www.ers.usda.gov/publications/agoutlook/Mar2002/ao289f.pdf

20. WTO, Committee on Agriculture Special Session. 2002. "Negotiations on Agriculture: Overview." TN/AG/6. Pages 58–61. December 18, 2002. http:// www.wto.org/english/tratop_e/agric_e/negoti_ modoverview_e.pdf

References

Aksoy, M. Ataman, Z. Ersel, and B. Sivri. 2003. "Demand Growth versus Market Share Gains: Decomposing Export Growth in the 1990s." Mimeo. World Bank, Washington, D.C.

Baffes, John. 2003. "Cotton Market Setting Policies, Issues, and Facts." Mimeo. World Bank, Washington, D.C. March.

Baffes, John, and Harry de Gorter. 2003. "Decoupling Support to Agriculture: An Economic Analysis and Recent Experience." *Annual World Bank Conference on Development Economics*. Paris, May 15–16.

Beghin, John, and M. Ataman Aksoy. 2003. "Agricultural Trade and the Doha Round. Lessons from Commodities Studies." *Annual World Bank Conference on Development Economics*. Paris, May 15–16.

Bell, B., and R. Elliott. 1993. "Aspects of New Zealand's Experience in Agricultural Reform Since 1984," Ministry of Agriculture and Forestry, Auckland, New Zealand.

Borrell, Brent, and David Pearce. 1999. "Sugar: the Taste Test of Trade Liberalization." Center for In-

ternational Economics, Canberra and Sydney, Australia, September.

Cato, James C., and C. A. L. Dos Santos. 2000. "Costs to Upgrade the Bangladesh Frozen Shrimp Processing Sector to Adequate Technical and Sanitary Standards." In L. J. Unnevehr, ed., *The Economics of HACCP*. Saint Paul, Minn.: Eagan Press.

DRIFE (Danish Research Institute of Food Economics). 2003. "Note on the Harbinson Draft on Modalities in the WTO Agriculture Negotiations." Agricultural Policy Research Division, Frederiksberg, Denmark.

De Gorter, H. 2003. "Agricultural Support Programs and Farm Household Incomes." Mimeo. World Bank, Washington, D.C.

Diop, Ndiame, John Beghin, and Mirvat Sewadeh. 2003. "Groundnut Policies, Global Trade Dynamics, and the Impact of Trade Liberalization." Mimeo. World Bank, Washington, D.C. March.

Federated Farmers of New Zealand. 2002. "Life after Subsidies: The New Zealand Farming Experience 15 Years Later." Wellington, New Zealand.

Gallezot, J. 2003. "La progressivité tarifaire de l'UE vis à vis des produits agricoles et agroalimentaires." Mimeo. Institut National de Recherche Agronomique, Unité Mixte de Recherche Économie Publique, Paris-Grignon. January.

Golub, S., and J. Michael Finger. 1979. "The Processing of Primary Commodities: Effects of Developed-country Tariff Escalation and Developing Country Export Taxes." *Journal of Political Economy* 83 (3): 559–77.

Henson, Spencer, Ann-Marie Brouder, and Winnie Mitullah. 2000. "Food Safety Requirements and Food Exports from Developing Countries: The Case of Fish Exports from Kenya to the European Union." *American Journal of Agricultural Economics*, No. 5.

Hoekman, Bernard, Francis Ng, and Marcelo Olarreaga. 2002. "Reducing Agricultural Tariffs versus Domestic Support: What's More Important for Developing Countries?" Mimeo. World Bank, Washington, D.C. September.

Ingco, M. 1997. "Has Agricultural Trade Liberalization Improved Welfare in the Least-Developed Countries? Yes." Policy Research Working Paper 1748. World Bank, Washington, D.C.

Integrated Framework. 2003. "Malawi Diagnostic Integration Study, Integrated Framework Diagnostic." Trade Integration Studies, Washington, D.C., May.

Jaffee, Steven. 2003. "From Challenge to Opportunity: The Transformation of Kenyan Vegetable Trade in the Context of Emerging Food Safety and Other Standards." Mimeo. World Bank, Washington, D.C.

Jansen, H. Tarp, Sherman Robinson, and Finn Tarp. 2002. "General Equilibrium Measures of Agricultural Policy Bias in Fifteen Developing Countries." TMD Discussion Paper 105. International Food Policy Research Institute, Washington, D.C.

Kalaitzandonakes, N. G., and M. E. Bredahl. 1994. "Protectionism, Efficiency, and Productivity Growth." In M. Hartmann, P. M. Schmitz, and H. von Witzke, eds., *Agricultural Trade and Economic Integration in Europe and in North America*. Kiel, Germany: Wissenschaftsverlag Vauk Kiel KG.

Kudat A., M. I. Ajwad, and B. Sivri. 2003. "A Synthesis of Trade and Poverty Country Studies in Diagnostic Trade Integration Studies." Mimeo. World Bank, Washington, D.C.

Lindland, J. 1997. "The Impact of the Uruguay Round on Tariff Escalation in Agricultural Products." *Food Policy* 22: 487–500.

Minot, Nicholas, and Lisa Daniels. 2002. "Impact of Global Cotton Markets on Rural Poverty in Benin." International Food Policy Research Institute, Washington, D.C. November.

Minot, Nicholas, M. Kherallah, and P. Berry. 2000. "Fertilizer Market Reform and the Determinants of Fertilizer Use in Benin and Malawi." MSSD Discussion Paper 40. International Food Policy Research Institute, Washington, D.C. October.

Mitchell, Donald. 2003. "Sugar Policies: Opportunity for Change." Mimeo. World Bank, Washington, D.C. March.

Morrison Paul, Catherine J., Warren Johnston, and Gerald Frengley. 2000. "Efficiency in New Zealand Sheep and Beef Farming: The Impacts of Regulatory Reform." *Review of Economics and Statistics* 82 (2): 325–37.

Nogues, Julio J. 2002. "Comment to 'Trade, Growth, and Poverty—A Selective Survey,' by Andrew Berg and Anne Krueger, and 'Doha and the World Poverty Target,' by L. Alan Winters." Commentary presented at the Annual World Bank Conference on Development Economics, May.

Nogues, Julio J. 2003. "Agricultural Exports in a Protectionist World: Assessing Trade Strategies for MERCOSUR." Paper prepared for the Trade and Integration Division of the Inter-American Development Bank.

OECD (Organisation for Economic Co-operation and Development). 1999. "Distributional Effect of Agricultural Support in Selected OECD Countries." Directorate for Food, Agriculture, and Fisheries, Committee for Agriculture, Paris.

_____. 2001. "The Uruguay Round Agreement on Agriculture: an Evaluation of Its Implementation in OECD Countries." Paris.

_____. 2002a. "A Positive Agenda." Directorate for Food, Agriculture, and Fisheries, Committee for Agriculture. Paris.

_____. 2002b. "Methodology for the Measurement of Support and Use in Policy Evaluation." Paris.

_____. 2002c. "Agricultural Policies in OECD Countries: Monitoring and Evaluation." Paris.

_____. 2002d. "Farm Household Income Issues in OECD Countries: A Synthesis Report." Directorate for Food, Agriculture, and Fisheries, Committee for Agriculture. Paris.

_____. 2002e. "The Incidence and Income Transfer Efficiency of Farm Support Measures." Directorate for Food, Agriculture, and Fisheries, Committee for Agriculture. Paris.

Quiroz, J., and L. Opazo. 2000. "The Krueger-Schiff-Valdés Study 10 Years Later: A Latin American Perspective." *Economic Development and Cultural Change* 49 (1): 181–96.

Rae, A., and T. Josling. 2003. "Processed Food Trade and Developing Countries: Protection and Trade Liberalization." *Food Policy* 28: 147–66.

Ravallion, Martin. 2000. "On the Urbanization of Poverty." Mimeo. World Bank, Washington, D.C.

Rosengrant, M. W., and S. Meijer. 2002. "Agricultural Trade Liberalization to 2020: Impact on Trade, Price, and Economics Benefits." International Food Policy Research Institute, Washington, D.C. September.

Schiff, Maurice, and Alberto Valdés. 1992. *The Political Economy of Agricultural Pricing Policy*. Volume 4 of *A Synthesis of the Economics in Developing Countries*. Baltimore: Johns Hopkins University Press.

Sheales, T., S. Gordon, A. Hafi, and C. Toyne. 1999. "Sugar International Policies Affecting Market Expansion." ABARE Research Report 99.14. Australian Bureau of Agricultural and Resource Economics, Canberra, Australia. November.

USDA (U.S. Department of Agriculture). 2002. "Agricultural Income and Finance Outlook." Washington, D.C. September 26.

Von Braun J., and E. Kennedy. 1994. *Agricultural Commercialization, Economic Development, and Nutrition*. Baltimore: Johns Hopkins University Press.

Wailes, Eric. J. 2003. "Global Trade and Protection Regimes in Rice Trade." Mimeo. University of Arkansas, Fayetteville. April.

Watkins, Kevin. 2003. "Northern Agricultural Policies and World Poverty: Will the Doha 'Development Round' Make a Difference?" *Annual World Bank Conference on Development Economics*. Paris, May 15–16.

World Bank. 2000. *Global Economic Prospects and the Developing Countries 2001*. Washington, D.C.: World Bank.

_____. 2001. *Global Economic Prospects and the Developing Countries 2002*. Washington, D.C.

WTO (World Trade Organization). 2003. "Negotiations on Agriculture First Draft of Modalities for the Further Commitments." WTO Document No: TN/AG/W/1/Rev.1. Geneva.