4

Opportunities and Challenges for Developing Countries

The structural transformation that occurs as countries develop economically involves large numbers of people moving over time from subsistence farming and other low-productivity agricultural activities to higher-productivity activities in the manufacturing and service sectors. Because governments often focus on industrialization as the path to development, many discriminated against agriculture until recently, taxing that sector in order to subsidize urban consumers and manufacturing activities. But many governments have come to realize that rural development can also contribute to economic growth during the transition, especially to pro-poor growth that causes the poverty rate to decline faster than it otherwise might at a particular rate of growth.[1]

Moreover, many developing countries have a comparative advantage in agriculture, and increased agricultural exports can help them address balance of payments problems, reduce debt burdens, and import the capital goods and technologies they need to move up the development ladder. Increased exports to liberalized rich-country markets—and reduced competition with subsidized exports—are, therefore, components of a pro-poor growth strategy.

But developing countries also have to adopt policy reforms and investment strategies that help the rural poor connect to markets and take advantage of any trade opportunities that arise. Most developing countries that previously taxed agriculture in order to subsidize the urban poor have moved to more neutral or even promotional agricultural policies. But most

1. Issues related to rural development and pro-poor growth are addressed in more detail in Timmer (2002, 2005).

Table 4.1 Agricultural indicators for developing countries
(simple average unless otherwise noted)

Indicator	Low-income countries	Lower-middle-income countries	Upper-middle-income countries	All developing countries
Percent of population in rural areas, 2003[a] (132)	70	50	22	57
Percent of economically active population in agriculture[b] (120)	69	33	23	48
Percent of poor in rural areas (52)	74	72	37	73
Percent of agricultural value added in GDP, 2004 (107)	31	13	7	20
Average cereal yields (kg/hectare), 1997–2004 (124)	1,543	2,331	2,741	2,070
Agricultural value added per worker, 2002 (2000 US dollars) (123)	424	1,971	6,734	2,234

a. Population weighted.
b. Most recent for which data available, generally early 1990s.

Note: Number of countries for which data is available is in parentheses.

Source: World Bank, *World Development Indicators.*

also still have a long way to go to provide the infrastructure, investments in human capital, and access to credit markets that must also be part of pro-poor growth strategies.

Agricultural Trade and Developing Economies

Agriculture provides a much larger share of income and employment in poor countries than in rich ones. Overall, almost half the population across all developing countries lives in rural areas and works in agricultural activities, but the sector generates an average of only 20 percent of developing-country GDP. The percentages are even higher in low-income countries, where 7 of 10 people work in agriculture, accounting for almost a third of GDP (table 4.1). As indicators of productivity, average cereal yields and agricultural value added per worker are both far lower in low-income

Table 4.2 Distribution of developing-country exports (percent)

Category	Agriculture[a]	Textiles and apparel	Electronic, computer, telecommunications equipment (SITC 75–77)[b]
Low-income countries	14	22.3	1.5
Lower-middle-income countries	8.1	13.9	18.2
Upper-middle-income countries	8.3	4.6	25.5
All developing countries	8.7	11.8	18.9

SITC = Standard International Trade Classification

a. Agriculture excludes fish (SITC 03) and cut flowers (SITC 29), includes SITC categories 00–12, 21–22, 26, 41–43.
b. SITC categories 75–77 (electronics, computers and other office equipment, and telecommunications equipment)

Source: UN Conference on Trade and Development, Trade Analysis and Information System (TRAINS) database.

countries than in middle-income countries. One consequence of this low productivity is that poor people in poor countries are more likely to be rural dwellers. In a sample of 52 countries compiled by the World Bank, 73 percent of the poor lived in rural areas (Aksoy 2005, 18).

While agriculture has a much bigger share of the economy in poorer countries, low productivity and the role of subsistence farming in these countries mean that they are not necessarily major exporters of agricultural products. Indeed, developing countries as a group are not much more dependent on agricultural exports than the industrialized countries, and most are net agricultural importers. Nearly 9 percent of total developing-country merchandise exports derive from agriculture (excluding fishing and forestry), compared with just over 7 percent for industrialized countries as a group. Among 115 developing countries for which data are available, 39 are net exporters of agricultural products and 76 are net importers. Thirty-seven of the latter group have an overall net deficit in agriculture but are net exporters in at least one of three broad subcategories (cereals, other food, or agricultural raw materials).

As shown in table 4.2, however, broad averages again mask wide variance in the level of dependence on agricultural exports, with low-income countries as a group more dependent on agricultural exports than middle-income countries. For low-income countries, the share of agricultural products among all exports is nearly twice that for middle-income countries. Also, textiles and apparel make up a little more than a fifth of the poorer countries' exports. Middle-income developing countries are much less dependent on

Table 4.3 Developing countries most dependent on agricultural exports

Country	Income level	Agriculture as a share of total exports (percent)	Top agricultural exports as percent of total agricultural exports	Top agricultural exports
Malawi	Low	89.5	74.5	Tobacco
Ethiopia (excludes Eritrea)	Low	83	75.8	Coffee, tea, cocoa, spices
Burundi	Low	82.4	97.6	Coffee, tea, cocoa, spices
Chad	Low	81.5	96.3	Cotton
Benin	Low	78.6	79.9	Cotton
Paraguay	Lower-middle	77.4	52.3	Oilseeds
Burkina Faso	Low	76.1	68.2	Cotton
Mali	Low	75	92.9	Cotton
Uganda	Low	73	80.2	Coffee, tea, cocoa, spices
Côte d'Ivoire	Low	68.9	79.3	Coffee, tea, cocoa, spices
Tonga	Lower-middle	67.4	81.5	Fruits, vegetables
Afghanistan	Low	63.5	35.7	Textile fibers other than cotton
Swaziland	Lower-middle	60.9	67.4	Sugar
St. Lucia	Upper-middle	60.2	86.1	Fruits, vegetables
Comoros	Low	56.2	97.9	Coffee, tea, cocoa, spices
Uzbekistan	Low	55.3	86.5	Cotton
Cuba	Lower-middle	53.4	33.6	Sugar
Zimbabwe	Low	52.9	61.2	Tobacco
Kenya	Low	51.3	61.5	Coffee, tea, cocoa, spices
Rwanda	Low	50.5	95.2	Coffee, tea, cocoa, spices

Sources: World Bank, *World Development Indicators;* UN Conference on Trade and Development, Trade Analysis and Information System (TRAINS) database.

both agriculture and textiles and have moved into electronic, telecommunications, and information products.

For certain countries, however, dependence on agricultural exports is quite high and often revolves around just one commodity. There are 20 developing countries, 14 in sub-Saharan Africa, where agriculture accounts for more than half of total merchandise exports (table 4.3), and 45 countries where the share is over a quarter. Of the latter group, 25 are characterized as low-income and 12 as low-middle-income. Among the 20 most agriculture-dependent exporters, more than half of the agricultural exports of all but two are concentrated in just a single two-digit Standard International

Table 4.4 Agricultural trade positions in developing countries
(number of countries by category)

Category	Low-income countries (44)	Lower-middle-income countries (45)	Upper-middle-income countries (26)
Net importers			
Cereals	40	38	24
Other food[a]	26	25	15
Total food	28	27	19
Agricultural raw materials	21	34	21
All agricultural categories	24	32	20
Net exporters			
Cereals	4	7	2
Other food[a]	18	20	11
Total food	16	18	7
Agricultural raw materials	23	11	5
All agricultural categories	20	13	6

a. Excludes fish and other seafood.

Source: UN Conference on Trade and Development, Trade Analysis and Information System (TRAINS) database.

Trade Classification (SITC) category. This group includes the four West African cotton exporters that put that product on the Doha Round agenda, as well as several others dependent on traditional tropical products such as coffee, tea, cocoa, spices, sugar, and tobacco.

Table 4.4 further underscores the relatively greater dependence of the poorest countries on agricultural trade. Nearly half of the low-income countries in the sample are net agricultural exporters (20 of 44), compared with less than a third of middle-income countries (19 of 71). Overall, half of the developing countries with net agricultural exports are in the lowest income category. But nearly two-thirds of these 115 developing countries are net importers of food and almost all of them import cereals, which are typically the major source of calories in poor countries. The potential impact of agricultural reform on net food-importing countries is taken up later in this chapter.

The Opportunities: What Do Developing Countries Export?

Clearly, agricultural policies in rich countries affect global trade patterns and influence what developing countries are able to profitably produce and

export. But developing-country patterns of agricultural production and trade are also affected by climate, geography, the allocation of natural resources, including land and water, and their own policies. Because most rich countries have relatively temperate climates, their agricultural output commonly includes grains, oilseeds, dairy products, and meat, while many developing countries are located in tropical latitudes that are appropriate for a variety of goods that are not produced at all or only in very small quantities further north.

In a recent World Bank analysis (Aksoy 2005, 30), agricultural production and exports were categorized in four broad groups:

- tropical products, including coffee, tea, cocoa, spices, and nuts (which are grouped together in SITC category 07), sugar, and textile fibers (mostly cotton, wool, and silk);
- temperate products, which most countries of the Organization for Economic Cooperation and Development (OECD) support, including meat, dairy products, grains, animal feed, and oilseeds and edible oils;
- nontraditional, dynamic products, including seafood, fruits, vegetables, and cut flowers; and
- "other processed products," including beverages, tobacco and tobacco products, and "other processed foods."

According to World Bank figures, the nontraditional, dynamic products make up the largest share of developing-country agricultural exports, more than 40 percent, and were the fastest growing in the 1990s, at an average annual rate of nearly 7 percent. For the purposes of this analysis, however, fish and other seafood and cut flowers are dropped from consideration because these products typically are not covered by rich countries' agricultural programs or in the Doha Round agricultural negotiations. However, sanitary and phytosanitary (SPS) standards, which are important in these sectors, are discussed later in this chapter. Domestic subsidies are also an important problem for trade in fish and fish products, but these issues are being addressed in the negotiations on nonagricultural subsidies.

If the focus is on the products that are covered in the agricultural negotiations, then the protected temperate products make up more than a third of developing-country exports, while traditional tropical products and fruits and vegetables each make up roughly a quarter. But fruits and vegetables remain one of the fastest-growing product sectors, behind only "other processed foods" and oilseeds and edible oils, both of which start from much lower bases (Aksoy 2005). This is important because fruits and vegetables are relatively less protected and subsidized in the industrialized countries, at least through traditional means, and thus could represent an important opportunity for developing-country exporters.

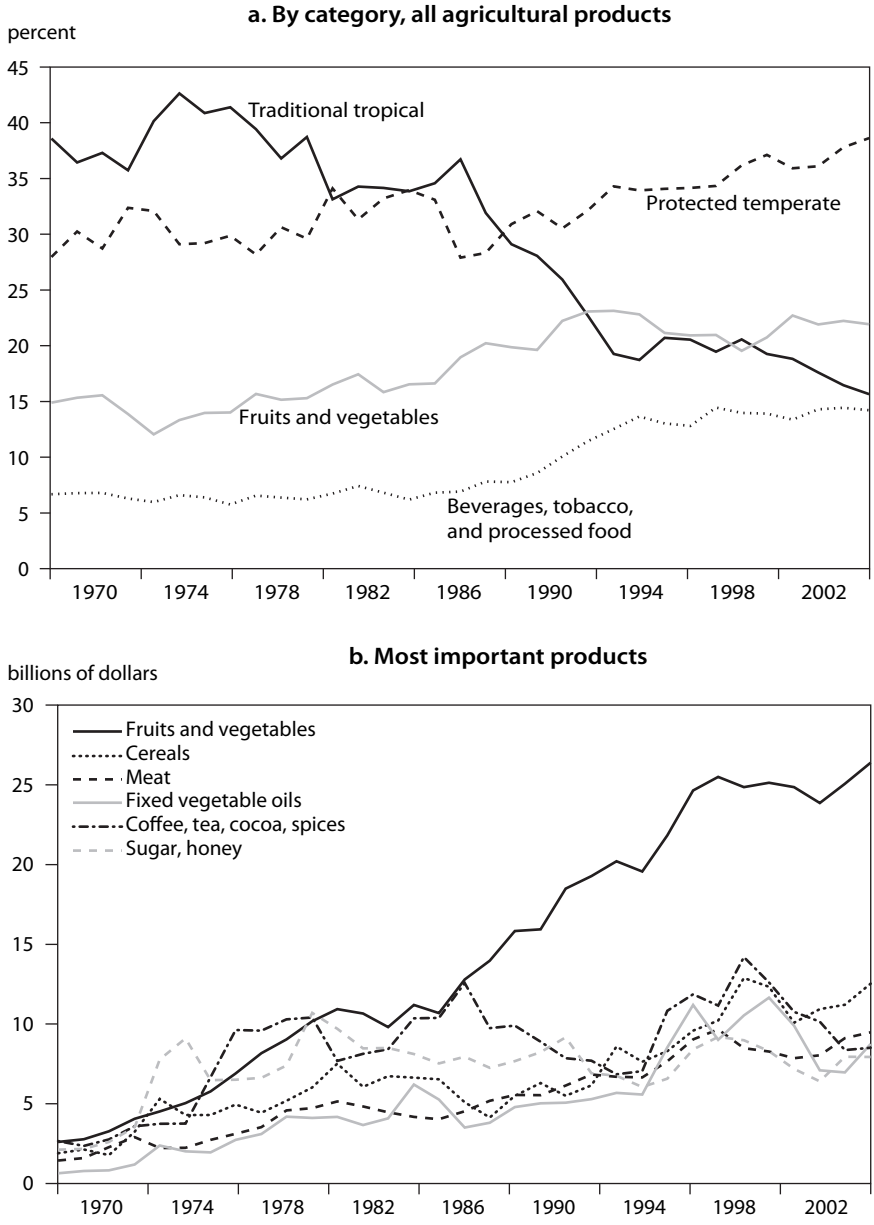
But these broad trends again mask important differences among developing countries. As shown in figures 4.1 and 4.2, middle-income countries have been more successful than low-income countries in diversifying away from traditional tropical products, with temperate products and fruits and vegetables accounting for larger shares. In the middle-income countries, the share of traditional tropical products has fallen by more than half, from 35 to 40 percent in the 1970s to about the same level accounted for by processed foods, beverages, and tobacco products. Despite high levels of OECD protection for grains, meat, dairy, and other temperate products, these products now make up nearly 40 percent of the exports of middle-income countries. Low-income countries have also managed to increase exports of some of the temperate products while reducing the share of traditional tropical products by nearly half. Low-income countries have had less success in developing exports in the fast-growing fruit, vegetable, and processed product categories.

The bottom halves of the two figures, showing commodity-specific data at the two-digit SITC level, present both a potentially more promising picture for the middle-income countries and a more challenging one for low-income countries. Middle-income countries have moved strongly into the dynamic fruits and vegetables sector, while the volatile coffee, tea, cocoa, and spices category still dominates for low-income countries. For both groups of countries, cereals are the second most important category, though most developing countries are net importers of cereals, with vegetable oils another of the temperate products that developing countries export. In the case of the low-income countries, however, these exports are relatively concentrated and often not in direct competition with those of rich countries. The cereal exports are largely accounted for by rice exports from India, Pakistan, and Vietnam to other developing countries, while the vegetable oil exports are mostly palm and coconut oil from Indonesia. Figure 4.1b also indicates that meat is relatively important for middle-income countries, but three-quarters of total meat exports from developing countries are accounted for by Brazil, China, Thailand, and Argentina. Moreover, pork and poultry, which the rich countries support less than beef, are important for all these countries except Argentina.

The importance to individual countries of tropical products, fruits and vegetables, cotton, and cereals is underscored in table 4.5, which shows the number of countries for which each product category is one of its top three agricultural exports. Coffee, tea, cocoa, and spices are a top export for 34 of 55 low-income countries and 25 of 80 middle-income countries. Fruits and vegetables are in the top three for 32 low-income and 55 middle-income countries. Again, what is notable is that these are commodities that the rich countries tend not to protect as heavily as sugar, dairy products, meat, rice, and other grains.

For tropical products tariff escalation is a problem, but, with the exception of sugar, the basic commodities typically do not face trade barriers in rich

Figure 4.1 Shares of middle-income country agricultural exports, 1970–2002



Source: UN Food and Agriculture Organization, FAOSTAT database.

Figure 4.2 Shares of low-income country agricultural exports, 1970–2002

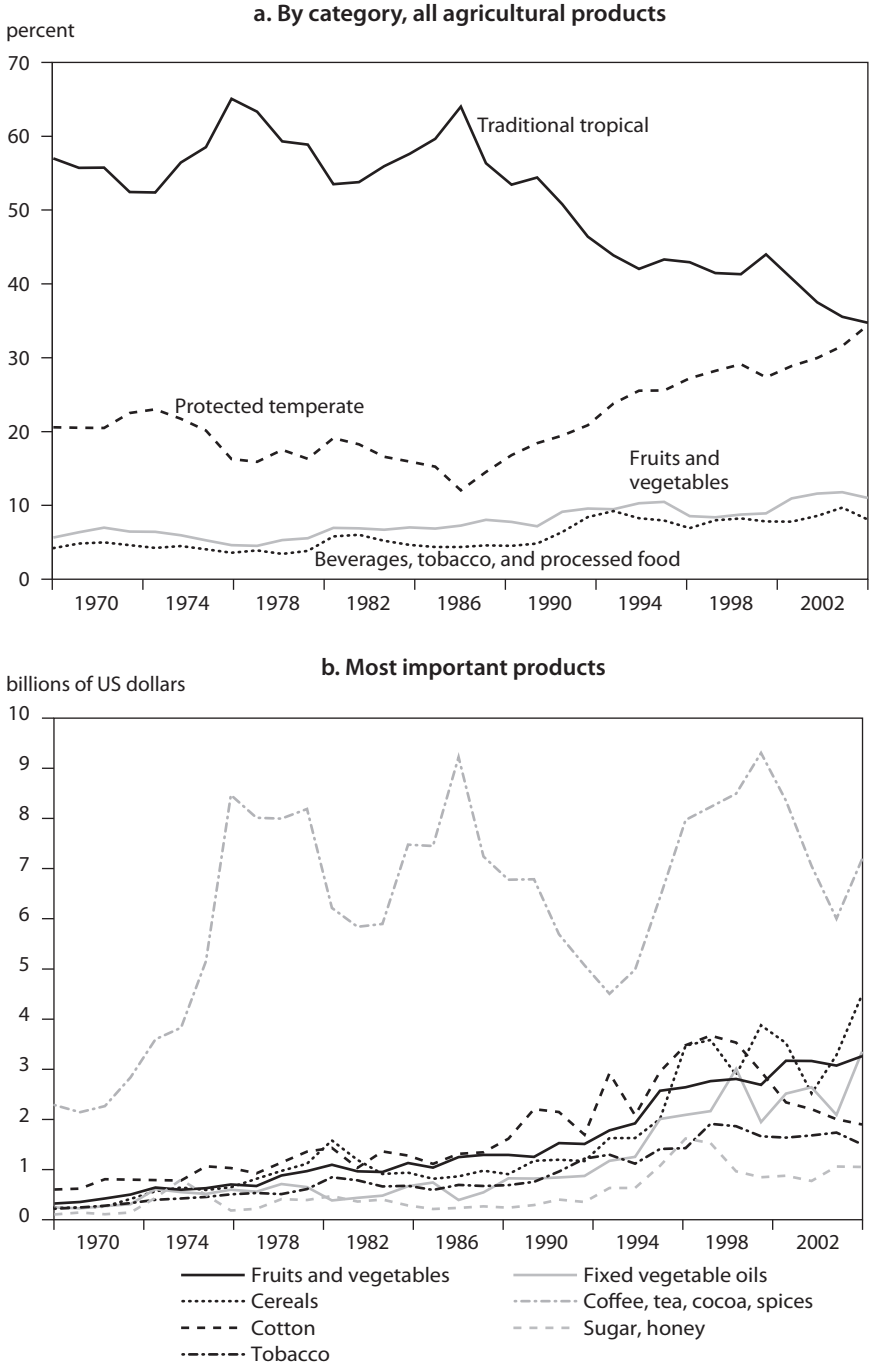


Table 4.5 Most important commodities among developing-country agricultural exports

Low-income countries (44)		Middle-income countries (71)	
Commodity	**Number of countries[a]**	**Commodity**	**Number of countries[a]**
Coffee, tea, cocoa, spices	34	Fruits and vegetables	55
Fruits and vegetables	32	Cereals	27
Cotton	25	Coffee, tea, cocoa, spices	25
Tobacco	17	Beverages	23
Oilseeds	11	Sugar	20
Sugar	9	Animal feed	17
Animal feed	8	Fixed vegetable oils, fats	13
Vegetable oils, fats	8	Tobacco	12
Cereals	7	Oilseeds	12
Beverages	5	Cotton	10
Meat	3	Meat	10
Dairy products	3	Miscellaneous food	9
Wool	3	Wool	4
Miscellaneous food	0	Dairy products	3

a. Number of countries for which each commodity is one of the top three agricultural exports.

Source: UN Conference on Trade and Development, Trade Analysis and Information System (TRAINS) database.

countries. Rather, the problems with export dependence on these products lie in other areas, including price volatility (indicated in figure 4.2b, in nominal dollars) and the tendency of many developing countries to be relatively dependent on just one or a few commodities, such as coffee. Sugarcane is a tropical product in which many developing countries have a comparative advantage but limited export opportunities because the United States, the European Union, and Japan protect their sugar producers from competition. But the effects of sugar liberalization would not benefit all the countries that currently export sugar to the United States and the European Union because of preference erosion (see box 4.1).

In sum, for a combination of reasons, including both comparative advantage and the deterrent effects of trade barriers, key developing-country exports are not those that rich countries support most generously. OECD liberalization of temperate products could help to encourage export diversification, especially among low-income countries that continue to be dependent on traditional tropical products. Substantial reductions in US cotton subsidies are also important to many very poor countries. But reduced intervention in other highly distorted commodity markets, including dairy products, meat, and sugar, might have fewer short-run benefits

Box 4.1 Sugar preferences in the United States and the European Union

The triangular trade in manufactured goods, human beings, and sugar and other tropical products that developed between Europe, western Africa, and the Caribbean in the 17th and 18th centuries was incredibly lucrative and morally repulsive. But sugar shipments to Europe were disrupted as a result of slave rebellions and trade embargoes accompanying the Napoleonic wars. About the same time, the process of producing sugar from beets was discovered in Germany, and the governments of France and other countries encouraged farmers to increase production of beets to replace Caribbean sugar. In 2005, with the help of export subsidies, the European Union was the world's second largest exporter of sugar. Adding to the distortions, the small amount of foreign sugar that is allowed into the EU market under the Sugar Protocol is mostly from former colonies in Africa and the Caribbean that have preferential access because of historical ties and not because they are the most efficient—or poorest—suppliers (Mitchell 2005).

The pattern of US trade is also influenced by historical events and has little connection to efficiency or comparative advantage. Like Europe, the United States initially relied on imports from the Caribbean. In 1898, however, the US government annexed Hawaii, partly as the result of demands from American investors in sugar and other forms of plantation agriculture who wanted to ensure tariff-free access to the US market. That same year, the treaty settling the Spanish-American War was signed, with Spain recognizing Cuban independence and agreeing to sell the Philippines to the United States for $20 million. Until 1960, almost all US imports came from Cuba and the Philippines, and imports accounted for one-half to three-quarters of US sugar consumption. In 1960, Hawaii accounted for 23 percent of domestic sugar production and 60 percent of sugar from cane; today it contributes under 5 percent of total domestic production (Mitchell 2005). But the Philippines remains the third-largest supplier of US sugar imports, while Cuba's quota was revoked following Fidel Castro's nationalization of the sugar industry. Unlike the European Union, the United States is a net sugar importer and does not subsidize significant sugar exports. But like the European Union, the United States strictly controls imports in order to support domestic prices while minimizing the budget costs.

One consequence of these historically rooted distortions is that in the short run there will be losers as well as winners among developing-country exporters with preferential access to the EU and US markets. Liberalization of the American and European markets would lower prices in Europe and the United States, but because it would eliminate subsidized EU exports and increase demand for imported sugar, liberalization would raise prices on the world market.

(box continues next page)

Box 4.1 Sugar preferences in the United States and the European Union (*continued*)

The most likely winners from reform are the low-cost, globally competitive exporters that currently gain relatively little from preferential access to the US and EU markets. On average in 2001–03, eight countries had significant shares of the global sugar market but shipped only a small fraction to the protected American and European markets. Brazil and Thailand alone accounted for 40 percent of global sugar exports, while Australia, Cuba, South Africa, Colombia, and Guatemala collectively accounted for another 20 percent. For most of these countries, the US and EU markets accounted for less than 3 percent of total sugar exports, the exceptions being Colombia (9 percent) and Guatemala (16 percent). India is also one of the world's top three producers of sugar and was a large net exporter of sugar in this period (2001–03). But these were unusually good years. Over a longer period, India is only a sporadic exporter, but its producers would still benefit from higher world prices.

The most likely losers from sugar trade liberalization are countries that continue to export to the United States and the European Union only because they hold quota rights, but which are overall net importers of sugar (the lower right quadrant of table 4.9). Some of these countries import and then reexport sugar in order to sell in these markets at prices that are on average two to three times the world price. Others export as much as their quotas permit while importing to meet domestic consumption needs. These countries would lose the protection-induced transfers from US and EU consumers, but these could be replaced with equivalent transfers from taxpayers through increased aid flows. Thus far, the compensation levels proposed by EU policymakers have been criticized as grossly inadequate. But these countries would nevertheless gain from reallocating resources wasted on rent seeking to areas where they are competitive.

In the middle, with uncertain futures, are smaller net exporters of sugar. Whether these countries gain or lose from US and EU policy reform depends on whether they can increase their global market share to the point that higher world prices make up for lower prices in the previously protected markets. Certain exporters would likely gain from liberalization because they currently sell at least twice as much on world markets as they do in the United States and European Union (those in the upper left quadrant of the table), and would therefore receive a higher price for most of their exports. But several other countries send a third or more of their sugar exports, and some as much as 100 percent, to these protected markets (upper right quadrant of table 4.9). They would lose a larger share of export revenues. Countries that could be hit particularly hard are producers for which sugar accounts for a significant share of total export revenues, such as Mauritius, Fiji, and Guyana.

than expected for developing countries *as a group*, particularly those at lower-income levels. Meat and dairy are high-value products because they are relatively capital-intensive and expensive to produce. These exports also face standards related to animal as well as human health and safety. For some countries, potential losses as a result of higher staple food prices or preference erosion could offset some or all of the benefits from increased market access that mostly accrue to others. And in the more dynamic fruits and vegetables sectors, the more important challenge is likely to be health and safety standards.

What Are the Challenges?

The premise behind the push to put agriculture at the center of the Doha Round is that significant agricultural liberalization by rich countries would provide increased opportunities for developing-country farmers to export, which would raise incomes in rural areas, where the bulk of the world's poor live. But developing countries are a diverse lot, and some could suffer losses as a result of higher food import bills or preference erosion. Thus, the effects on individual countries and on the poor who reside there would depend on which products each country traded and how those products were liberalized. The effects would also depend on whether the country had the infrastructure, credit markets, and domestic policies to enable farmers to respond to new trade opportunities.

Net Food Importers and the Distributional Effects of Agricultural Liberalization

Concerns about the potential impact of reductions in agricultural subsidies for poor countries that are net food importers were first raised in the Uruguay Round. These concerns proved to be premature because the limited reforms that were adopted had little, if any, impact on world food prices. With the Group of 20 developing countries insisting on significant reductions in agricultural support in the Doha Round, concerns about the impact on net food-importing countries have resurfaced. The problem arises because most analyses of OECD agricultural policy reform predict increases in the world price of affected commodities as domestic production and exports decline and demand for imports increases. Net food importers worry about both the potential impact on their balance of payments and the distributional consequences if the wages of low-skilled workers do not rise enough to make up for higher food prices. As shown in table 4.4, all but 13 of the 115 countries for which data are available are net importers of cereals, which along with locally grown root crops are usually staple food commodities for the poorest people.

While concerns about the effects of reduced subsidies on the poor are valid, a careful look at patterns of trade and agricultural support suggests that the impact of *feasible* reforms will not be as great as feared. Some net importers would likely become net exporters of some agricultural products if world prices rose and market access for their products increased. Cline (2004, chapter 3) also points out that most developing countries have even larger trade deficits in manufacturing than in agriculture, and thus should still gain overall from a broad liberalization package that lowers prices for their manufactured imports. However, that outcome is based on the assumption that developing countries, including the least developed, will undertake some liberalization of their own.

Even if national-level balance of payments problems are mitigated by offsetting export gains due to increased market access and reduced import prices from lowering of the importers' own barriers, there will still be distributional consequences within countries. Depending on what happens to low-skill jobs and wages in other sectors, poor consumers may suffer from rising food prices, even if prices for other goods drop, because food is such a significant part of the consumption basket. Moreover, much recent research using microlevel data based on household surveys shows that the rural poor, expected to be major beneficiaries of OECD agricultural reform, are often net buyers of food and could end up worse off, at least in the short run.

But the OECD estimates of producer support for agriculture described in chapter 2 showed that dairy products, sugar, and rice receive the highest levels of support. Of these, only rice is a staple commodity consumed regularly by the poor. According to data from the UN Food and Agriculture Organization, more than 60 percent of the daily calories consumed in most developing countries come from cereals and starchy roots and less than 10 percent from animal products (table 4.6). The exception is Latin America and the Caribbean, which has a higher average per capita income than other developing regions and a more diverse diet. In sub-Saharan Africa, half of daily calories are provided by products that are little traded, principally sorghum and millet, local varieties of maize, and cassava. Rice, which has one of the lowest ratios of trade to consumption of any commodity, is the dominant crop in Asia, accounting for a third of daily caloric intake in South Asia and half in East Asia and Southeast Asia. In South Asia, wheat is also important, but imports account for a small share of the supply.

Thus, the commodity of most concern in the context of trade liberalization would appear to be rice; the World Bank estimates that export prices could rise on a trade-weighted average basis by a third.[2] But most countries in Asia are largely self-sufficient in rice as a result of deliberate government

2. Projected export price increases for the different varieties of rice vary widely, from less than 10 percent for long-grain rice to as much as 91 percent on exports of medium-grain rice (Wailes 2005).

Table 4.6 Sources of daily calories in developing countries (percent)

Source	Sub-Saharan Africa		Latin America and the Caribbean		South Asia		East and Southeast Asia	
	Daily calories provided by:	Imports as share of domestic supply	Daily calories provided by:	Imports as share of domestic supply	Daily calories provided by:	Imports as share of domestic supply	Daily calories provided by:	Imports as share of domestic supply
Cereals, starchy roots	64	21	40	31	63	2	64	25
Wheat	7	77	13	62	21	3	6	105
Rice	8	42	9	16	35	negl.	49	5
Maize	15	9	14	18	2	2	5	38
Sorghum, millet	14	1	negl.	33	3	negl.	negl.	negl.
Starchy roots	20	negl.	4	2	2	negl.	4	6
Addendum:								
Other vegetable products	28		40		29		27	
Animal products	6		20		8		9	

negl. = neglible

Source: UN Food and Agriculture Organization, FAOSTAT database.

Table 4.7 Price effects of complete global trade liberalization, selected countries and commodities (change in the import price index)

Commodity	World	Bangladesh	Indonesia	Mozambique	Vietnam
Primary products	6.1	9.5	13.4	5.1	9.2
Paddy rice	22.2	3.0	9.4	14.4	9.2
Wheat	9.0	2.7	7.8	8.1	3.7
Cereal grains	12.2	5.3	8.2	4.8	5.0
Food	2.8	4.8	4.2	2.5	3.3
Beef	8.4	1.1	4.8	4.7	6.3
Other meat	3.4	3.8	–2.0	2.7	–0.6
Vegetable oils	3.4	4.7	–0.1	3.4	1.6
Dairy products	11.8	5.7	8.6	1.9	7.6
Processed rice	7.7	5.2	10.6	7.2	5.4

Source: Hertel and Ivanic (2006).

policies to stabilize domestic prices and promote food security (Timmer 2004). Moreover, a World Bank study shows that under a scenario of global free trade, in which developing countries would also reduce their tariffs on rice, average *import* prices for rice would fall by roughly 15 percent (Wailes 2005, 187). This study finds that the most likely losers from liberalization of rice markets would be net importers that already have low tariffs and limited ability to influence prices, such as Brazil, Turkey, the Middle Eastern countries, Hong Kong, and Singapore, all middle-income or higher-income countries.

Bangladesh is a very poor country and a net food importer that appears in many analyses as one of the potential net losers in some trade liberalization scenarios. But even Bangladesh is a large net importer of rice only in years when the local crop fails because of bad weather or other reasons (Wailes 2005, 182). Moreover, Bangladesh in recent years has chosen to impose a tariff on rice of more than 20 percent, which it could reduce in the face of global price increases. Potential losses for Bangladesh arise from a more complex interaction of various potential liberalization effects. In addition to higher food prices, Bangladesh could also face higher prices for cotton and cotton textiles, which would raise costs for its apparel export sector at the same time that preference erosion undermines the competitiveness of those exports in the European market. Table 4.7 summarizes World Bank estimates of the world price effects of moving to global free trade for selected commodities. The World Bank model predicts average price increases for primary products of 6 percent and for food products of less than 3 percent (Hertel and Ivanic 2006). Not surprisingly, since rice is one of the most distorted grain markets, rice prices could rise by about 22 percent on average, but the projections are lower in selected poor countries, including

Indonesia. Prices for wheat and for other grains are both projected to rise by around 10 percent on average. In four of the poorest countries selected for analysis, price effects for wheat and other grains range from a 2.7 percent increase for wheat (Bangladesh) to 8.2 percent for grains (Indonesia).

It should be noted that, according to commodity price statistics from the International Monetary Fund (IMF), the projected price increases are not much different from and are often lower than the "normal" fluctuations in prices of major commodities. The average annual price change (up and down) over the past 20 years for rice, wheat, and corn was around 15 percent (author's calculations). Moreover, no one expects the result of the Doha Round to be complete global liberalization, and whatever liberalization is achieved will likely be phased in over a number of years. Nor is the elimination of export subsidies likely to have much effect on the price of staples. In the two most recent years for which notifications to the WTO are available (2000 and 2001), export subsidies on wheat and other grains dropped sharply, and sugar, dairy, beef, and other processed products accounted for roughly 80 percent of all export subsidies.[3] Finally, the potential effects of OECD agricultural reforms on the rural poor are more complicated than is often assumed. The premise behind the push for liberalization as a key poverty reduction mechanism is that while poor urban consumers will lose from higher food prices, a greater number of poor rural producers will gain. Cline (2004, 129), for example, estimates that an average 10 percent increase in agricultural prices as a result of liberalization would lift 200 million people out of poverty in 72 developing countries for which data are available.

However, recent research derived from household surveys finds that the short-term effects of agricultural liberalization for the poorest people may be either neutral or negative. Liberalization-induced price effects may not trickle down to poor farmers at all if they are in remote areas with few roads and little or no access to markets. A World Bank study on the distributional effects of trade liberalization in Mexico found that the transmission of import price changes was less in rural areas than in urban areas, and was also less the further one got from the border (Nicita 2004). But to the extent that higher prices do trickle down to rural areas, other research shows they could have negative effects for the poorest people because they are often net buyers of food rather than net sellers.

The World Bank (2005a, 64) concludes, "In rural areas, the empirical finding that emerges consistently in most parts of the developing world is that a majority of households are net food buyers, while a relatively small minority of wealthier households are grain sellers. The poor, who are overwhelmingly net food purchasers, suffer disproportionately from high food prices." But it is important to remember that this is the short-run effect and

3. See WTO Agricultural Trade Policy Commitments Database at the USDA Economic Research Service Web site, www.ers.usda.gov (accessed on April 19, 2006).

that increased exports do offer the potential to raise incomes significantly among farmers able to switch from subsistence farming to agricultural production for the market. Research on Zambia provides evidence that such switching does occur but emphasizes that complementary domestic policies are necessary if the potential gains are to be fully realized (Balat and Porto 2005, Timmer 2002).[4]

Preference Erosion

Preference erosion is another problem raised by the Doha Round, though it is a more limited one in the agricultural area than the potential problems of net food importers. It is more limited both in terms of the countries affected, which are often not the poorest, and the commodities involved. This is contrary to what might be expected, since average tariffs are much higher on agricultural commodities than on manufactured goods. But most sensitive agricultural products are excluded from—or their import highly restricted under—the Generalized System of Preferences (GSP) as implemented by most rich countries. Many countries provide greater access to the *least* developed countries (LDCs), though the European Union's "Everything But Arms" program still delayed liberalization of sugar, rice, and bananas. And the United States has not yet committed to quota-free and duty-free access for all products from all LDCs.

Thus, as argued by Cline (2004) and others, preference erosion for the LDCs could be addressed in part by improving access for sensitive commodities where it remains restricted and by making rules of origin less restrictive and easier to meet. This could help to preserve access for the most vulnerable states even as most favored nation barriers are gradually reduced. But one might also expect the impact of preferences on low-income countries to be limited, given the still-heavy dependence on exports of tropical products that, with the exception of sugar in all major markets and bananas in the European Union, usually face low or no tariffs. Combined with the fact that poorer countries tend to have less administrative capacity and greater difficulties meeting the eligibility and rules of origin requirements for preferences, it is not surprising that a US Department of Agriculture study finds that LDCs "do not appear to benefit from incentives provided by preferential programs" (Wainio et al. 2005).

4. Additional research on the distribution of gains and losses from agricultural trade, focusing on Ethiopia and Mexico, may be found in Levinsohn and McMillan (2005) and Ashraf, McMillan, and Zwane (2005), respectively. These studies support the finding in the World Bank report that the poorest people in rural areas tend to be net buyers of food. Additional World Bank research on price transmission and the distributional effects of agricultural liberalization may be found in Hertel and Winters (2006).

Table 4.8 Indicators of trade preferences for agricultural products

Country/preference	Simple average tariff (percent)	Duty-free lines (as percent of total)
United States		
MFN	9.3	24
GSP	8	54
LDC, regional arrangements[a]	5.1–5.3	87–88
European Union		
MFN	21.9	14
GSP	19.7	18
Africa, Caribbean, and Pacific[b]	13.3	60
Everything But Arms	1.1	98
Japan		
MFN	15.6	20
GSP for non-LDCs	15.1	30
GSP for LDCs	14.2	35

GSP = Generalized System of Preferences
LDC = least developed country
MFN = most favored nation

a. Includes preferences under the Caribbean Basin Economic Recovery Act, the Andean Trade Preference Act, and the African Growth and Opportunity Act.
b. Lomé and Cotonou arrangements.

Source: Wainio et al. (2005).

Table 4.8 shows indicators of preference margins for developing countries in the US, European, and Japanese markets. The table shows that Japan largely excludes agriculture from its GSP program, even for LDCs. Neither the European Union nor the United States provides much additional access under its regular GSP programs, but both are more generous toward LDCs and certain regional partners. As noted in the opening paragraph of the present section, the European Union provides duty- and quota-free access for LDCs except for sugar, rice, and bananas. The preference margin for the African, Caribbean, and Pacific countries under the Cotonou arrangement (which replaced the Lomé Convention on June 23, 2000) is nearly nine percentage points, but the average tariff remains relatively high at 13.3 percent. Provisions for LDCs and eligible trading partners in the Caribbean, the Andean region, and sub-Saharan Africa reduce the average US agricultural tariff by almost half, to just over 5 percent, but that is still double the average tariff on manufactured exports (Wainio et al. 2005, 23).

Agricultural import barriers in the United States are relatively concentrated in a few sectors, and 62 percent of US agricultural imports entered duty free in 2002 without any preference at all. Preferences are more important in Europe both because the EU preference margin is larger

and because only a third of the European Union's agricultural imports enter duty free without preferences. But excluding the tariff-rate quota (TRQ) commodities, preference margins in both the United States and the European Union are largest for fresh and prepared fruits and vegetables and other processed foods that are more likely to be exported by middle-income countries (Wainio et al. 2005). But 40 percent of the preference benefits received by 76 middle-income countries still come from sugar, and another 20 percent come from bananas (Gillson, Hewitt, and Page 2005). According to US Department of Agriculture calculations, the top 20 preference beneficiaries (for all products, not just agricultural products) in the US market account for nearly 90 percent of total preferential imports, and none of them are LDCs. In the European Union, the top 20 beneficiaries account for two-thirds of total preferential imports (not just agriculture), and only one of them, Madagascar, is an LDC (Wainio et al. 2005, 16–17).

Sensitive products protected by TRQs, primarily bananas in the European Union and sugar in both the European and US markets, present a particular problem because preferential access involves transfers of millions of dollars arising from the quota rents. In these cases, restricted market access is allocated on the basis of colonial or other historical ties, rather than either need or efficiency. Caribbean banana exporters have already been forced to undergo some adjustment because of WTO challenges to the EU banana regime by more efficient Latin American producers. In the sugar case, the desire of rich countries to continue protecting their sugar producers coincides with the desire of preferred exporters to maintain their quota rents (see box 4.1). Here again, however, WTO litigation, this time by Brazil, forced the European Union to reform its sugar program, cutting the support price by roughly a third so as to bring subsidized exports into line with prior commitments. This reform is not expected to lower the level of imports from preferred exporters, but they will receive lower revenues as a result of the internal EU price cut.

But again, in the cases of sugar and banana preferences, the beneficiaries are not typically the poorest countries. In the European Union, only two of the countries with preferential access for bananas and five with preferential access for sugar fall into the LDC category. Only four sugar quota holders in the US market are LDCs. A study by the British Overseas Development Institute has produced an estimate that preference erosion losses from complete liberalization of the EU banana and sugar markets would be $100 million and $500 million, respectively (Gillson, Hewitt, and Page 2005, 74). Eighty percent of the losses would be concentrated in five countries: Mauritius, Swaziland, Guyana, Jamaica, and Fiji. In regard to average external income (exports of goods and services plus gross aid flows) during 1999–2002, only 8 of the 22 countries that were studied had losses of 5 percent or greater: Belize, Dominica, Fiji, Guyana, Mauritius, St. Lucia, St. Vincent and the Grenadines, and Swaziland. Jamaica had esti-

mated losses of 2 percent of external income, while the losses of the others were 1 percent or less (Gillson, Hewitt, and Page 2005, 74). The principal problem is that many of these countries are small island states with few alternative sources of employment.

With respect to bananas, the European Union is moving from a TRQ to a tariff-only system as a result of the WTO litigation. Unless the tariff is set at a very high level, most of the currently preferred high-cost Caribbean exporters will likely lose market share. The lower the new tariff, the more the low-cost Latin American exporters will gain. The sugar situation is discussed in more detail in box 4.1, and table 4.9 shows potential winners and likely losers from EU and US liberalization of sugar TRQs.

In sum, the preference erosion problem is primarily a bilateral one between the European Union and a small number of African, Caribbean, and Pacific countries exporting bananas and sugar.[5] While the problems for these countries are potentially serious, they do not appear to be widespread enough to justify sacrificing the potential gains for many other poor countries that would benefit from liberalization.

Domestic Obstacles to Grasping Trade Opportunities

Higher world prices resulting from agricultural liberalization by rich countries should stimulate increased production and exports by farmers in poor countries with comparative advantage in those products—if the price signal gets to those farmers. But as recent research at the World Bank indicates, border price changes do not always reach remote areas where the costs of getting goods to and from markets are high (Nicita 2004). Government policies, such as overvalued exchange rates or the maintenance of monopsonistic state trading companies, can also mute market signals. Unless these domestic challenges are also addressed, potential benefits from trade liberalization may go unrealized.

"Connecting the poor to markets" (Lucas and Timmer 2005) requires access to credit and inputs, storage facilities, telecommunications, roads, and ports. Processing facilities, which add value and create jobs for the rural poor, especially for products with higher value added such as meat and dairy and the more dynamic fruit and vegetable sectors, require reliable sources of electricity for refrigeration. In many areas with spotty rainfall, irrigation projects will also be necessary to expand production. Many parts of sub-Saharan Africa need improved seed varieties and methods for dealing with pests.

5. Preference erosion of a sort has been an issue in the textile and apparel sector since the Multi-Fiber Arrangement expired at the beginning of 2005 (Bhattacharya and Elliott 2005).

Table 4.9 Possible winners and likely losers from US and EU sugar policy reform (based on average data for 2001–03)

	US and EU share of exports is one-third or less	US and EU share of exports is one-half or more[a]
Net exporters	Argentina Bolivia Costa Rica Ecuador El Salvador Ethiopia Honduras Nicaragua Zambia	Barbados (9.1) Belize (19.1) Dominican Republic (1.6) Fiji (19.3) Guyana (20.3) Jamaica (5.9) Malawi (8.9) Mauritius (16.3) Mexico (0) Panama (1.6) Papua New Guinea (0.1) St. Kitts and Nevis (26.9) Swaziland (6.7) Zimbabwe (4.2)
Net importers	Kenya Sudan	Burkina Faso Congo Cote D'Ivoire[b] Madagascar Mozambique Nepal Paraguay[b] Peru Philippines Taiwan Tanzania Trinidad and Tobago Uruguay

a. The share of sugar in total exports is shown in parentheses. Countries such as Fiji, Guyana, and St. Kitts and Nevis that are relatively dependent on sugar for export revenues and ship a large share to protected markets are particularly vulnerable to disruptions from preference erosion.
b. FAOSTAT has these countries as net exporters but USDA data have them as net importers, and neither produces enough to meet domestic consumption needs, suggesting they must be re-exporting imports to fill their US and EU quotas and underreporting imports to the UN Food and Agriculture Organization.

Note: Potential winners are at the upper left and the most likely losers at lower right.

Some of the barriers to getting products to market in developing countries are suggested by the data in table 4.10. The road network in low-income countries is less than a quarter of that in upper-middle-income countries, and only a quarter of those roads are paved. Even in middle-income countries only half the roads are paved, compared with 95 percent in developed countries. Thirty of the 31 land-locked developing countries have low or

Table 4.10 Indicators of infrastructure quality and trade costs

Indicator	Low-income countries	Lower-middle-income countries	Upper-middle-income countries	Developed countries
Kilometers of roads per square kilometer of area, 1999 (127)	0.17	0.29	0.77	2.44
Percent of roads that are paved, 1999 (118)	25	50	50	95
Aircraft departures per million people per year (average 2000–2002)	285	1,250	4,120	16,780
Fixed line and mobile phone subscribers per 1,000 people (2002)	39	302	501	1,250
Number land-locked (134)	21	9	1	10
CIF-FOB factor for developing-country exports[a] (103)	1.18	1.14	1.13	1.07

a. The ratio of the value of imports with the cost of insurance and freight (CIF) included to the value free on board (FOB), without those costs.

Note: Number of countries for which data are available is indicated in parentheses.

Sources: World Bank's *World Development Indicators;* IMF's *Direction of Trade Statistics.*

lower-middle incomes, and most of them are in sub-Saharan Africa. Aircraft departures are much less frequent in lower-income countries, and only about 4 out of 100 people in low-income countries have phones, versus about 1 in 2 in upper-middle-income countries. Further indication of relative trade costs is provided by the costs of insurance and freight, which are on average twice as high for developing-country exports as for developed countries.

Other evidence of the obstacles faced by businesses may be found in the World Bank's investment climate surveys covering 28,000 firms in 58 developing countries. One of the questions on the survey asks respondents to rate the severity of various potential obstacles from minor to very severe. Table 4.11 shows the percentage of respondents in 53 developing countries that ranked the obstacles as "major" or "very severe." Regardless of income level, businesses in most countries complain that taxes are too high. But in developing countries, complaints about tax administration are relatively more common. Uncertainty about economic policy and macroeconomic instability are also frequently expressed concerns, as are access to finance

Table 4.11 Firm perceptions of major or severe obstacles to doing business (percent)

Obstacle	Low-income countries (18)	Low-middle-income countries (27)	Upper-middle-income countries (8)[a]
Economic policy uncertainty	36.8	48.4	35.8
Macroeconomic instability	34.3	46	29
Corruption	44.1	40.2	18.7
Crime, theft, and disorder	26.7	31.9	13.8
Anticompetitive practices	27.4	36	22.2
Legal system, conflict resolution	22.7	24	16.1
Telecommunications	14.1	10.6	3.1
Electricity	38.3	20.6	4.8
Transportation	15.8	13	4.4
Access to land	19	13.5	7.1
Tax rates	39.7	42.1	41
Tax administration	37	32.5	24.5
Customs and trade regulations	25.9	20.9	12.8
Labor regulations	12.6	20.8	11.8
Skills of available workers	15.8	21.2	14.6
Obtaining or renewing permits	14.6	18.7	11.2
Access to finance	33.2	32.5	24.4
Cost of finance	40.1	40.5	27.4

a. Eastern European countries.

Note: Percent of respondents indicating that a particular problem is a major or severe obstacle to doing business in that country.

Source: World Bank's *Investment Climate Survey* database.

and the cost of finance. Corruption and inadequate infrastructure, especially reliable electricity supplies, are far more severe in low-income countries than in the eight upper-middle-income countries included in the sample, but corruption is viewed as nearly as severe an obstacle in lower-middle-income countries as in poorer ones.

Some of the surveys also differentiate between exporters and nonexporters. In a subsample of 20 low-income and lower-middle-income countries, exporters in five countries generally find many obstacles to be *less* severe than other types of firms do in their country. Exporters in nine countries report facing *more* problems than other types of firms do in their country. Exporters in five more countries report mixed experiences relative to nonexporting firms, while in Senegal, exporters appear to be little different from other firms in assessing obstacles. In Bangladesh, Brazil, El Salvador, Honduras, and Pakistan, governments appear to have successfully reduced some burdens, with exporting firms reporting relatively fewer

problems in some areas, particularly taxes, access to finance, corruption, and economic policy uncertainty and instability. In the nine countries where exporters are more likely than nonexporters to report that they face major obstacles (China, Ecuador, Ethiopia, Guatemala, Nicaragua, Philippines, Sri Lanka, Turkey, and Uganda), problems are cited in the areas of customs administration, corruption, infrastructure (especially telecommunications and transportation), and occasionally the cost of finance. In the five countries where firms' experience is mixed (Cambodia, Kenya, Mozambique, Tanzania, and Zambia), exporters report fewer problems with access to finance and land and some government policies but relatively greater problems with customs administration and infrastructure.

Sanitary and Phytosanitary Standards: Both a Challenge and an Opportunity

Many analysts are increasingly concerned that as tariffs and other traditional barriers to trade come down, they are being replaced by nontariff barriers, including standards that often discriminate against imports, sometimes intentionally and sometimes not. In the agricultural area, SPS standards, which are at least nominally aimed at protecting human, plant, and animal health, cause the greatest concern. There is no systematic method for measuring the scope or impact of SPS regulations, but many analysts believe that they have increased in both number and diversity over the past decade or so. A World Bank project on food safety and agricultural health standards attributes the trend to governments' reaction to consumer concerns over a series of "food safety events" over the past two decades, most notably the scare over beef from animals with a brain-wasting disease (bovine spongiform encephalopathy, or BSE) that could be transferred to humans (World Bank 2005b, 16).

Developing countries are particularly concerned about the spread of SPS standards because many lack the capacity to comply with rich countries' standards. Further, within specific countries there are concerns that stringent standards will particularly disadvantage smallholders. The Uruguay Round negotiators attempted to lower the costs associated with standards and to reduce the possibility of associated impediments to trade by providing guidelines for the establishment and implementation of standards in the Agreement on the Application of Sanitary and Phytosanitary Measures. The core principles of the agreement include harmonization of standards, science-based risk management, recognition of equivalence when standards differ, regionalization (recognizing that animal or plant diseases or pests may be restricted to particular regions within an exporting country), and transparency.

Adoption of the SPS agreement has led some countries to review and modify some standards to make them more efficient and effective, and there

has been progress in loosening countrywide bans on products affected by plant or animal pests or diseases so as to allow imports from regions that are unaffected. The transparency of the standard-setting process has also been improved through the requirement that the WTO be notified of new or changed regulations. There has been far less progress in international harmonization of standards or in recognition of equivalence of different standards across countries.

A recent analysis by three prominent agricultural policy experts concluded that harmonization and recognition of equivalence, while conceptually appealing, might not be practical, cost-effective approaches to the problem of SPS standards (Josling, Roberts, and Orden 2004, 44–50). First, harmonization of standards is not always economically efficient because of differences from country to country in climate, income level, and food tastes and preferences. Thus, the SPS agreement allows countries to set standards that exceed internationally agreed levels as long as a science-based risk analysis can be cited in justification. In addition, national standards cannot be harmonized where no international standard exists. According to a World Bank study that examined the thousands of new or modified SPS standards submitted to the WTO, only 22 percent involved measures for which an international standard existed (World Bank 2005b, 22).

With respect to recognition of the equivalence of different standards, Josling, Roberts, and Orden (2004) note that the few cases in which this was attempted by developed countries involved a lengthy and expensive process of negotiation and investigation by the relevant regulatory authorities in each country. A US submission to the WTO on the issue suggested that the trade benefits from equivalence agreements may not justify the administrative burden involved in reaching them (Josling, Roberts, and Orden 2004, 50). They conclude that technical and financial assistance to developing countries might be better used to help them with conformity assessment and verification of compliance, rather than to encourage their participation in standards-setting processes (pp. 204–05).

SPS and other standards thus remain a challenge for most developing countries. But approaching the problem from a traditional trade policy perspective as a new form of protectionism, or as a set of rules under which developing countries need special and differential treatment, is not likely to be helpful, for several reasons. First, especially with respect to food safety, reputation matters. Challenging standards in other countries or taking advantage of special and differential provisions in the SPS agreement that allow developing countries to take longer to implement standards may simply make consumers suspicious of affected imports. Second, while protectionist abuses certainly exist, most food and agricultural safety regulations are aimed at market failures resulting from incomplete or faulty information or from collective action problems, including the inadequate provision of public goods. Even when standards have a protectionist element, they typically have some basis in science, and it can be

difficult to disentangle the two. In addition, what limited evidence exists (notifications of new regulations, Dispute Settlement Understanding cases, rejections of products at the border), does not suggest that questionable SPS regulations are a *major* impediment to trade. Between 1995 and 2001, WTO members submitted more than 2,400 notifications of new standards to the SPS Committee, but over the same period only 187 complaints challenging the legitimacy of notified standards were filed with the committee (Josling, Roberts, and Orden 2004, 59–60). The World Bank study on SPS standards found that rejections of import shipments for health and safety reasons had increased in recent years, but that such rejections often occurred in the context of increasing market share by imports and that the rejections most often affected large middle-income and industrialized exporters such as Brazil, Mexico, Thailand, and Turkey. The study found relatively few rejections of shipments from low-income countries, in part because these countries tend to export less sensitive products, such as tropical beverages and sugar. But the authors also found that many low-income countries had managed to gain certification of compliance with some standards—for example, EU standards for fish—and were not subjected to high levels of border inspection. This study concluded that "border rejections are more of an irritant than a major problem for large exporters" (World Bank 2005b, 103).

But even legitimate standards can present daunting challenges for poorer countries, to the point that a strategy of contesting standards as too high or as unfair addresses only a fraction of the problem. Moreover, many quality and food product standards are increasingly being imposed on suppliers by *private-sector* buyers such as grocery stores and other retailers that are responding to consumer demand for improved quality and other product and process attributes, including environmental and social standards.

Thus, the World Bank study recommends looking at SPS and other standards as part of the broader competitiveness problem facing many developing countries in export markets. This wider perspective leads to a focus on policy priorities distinct from the traditional "standards as nontariff barriers" approach and downplays traditional special and differential treatment. The World Bank concludes that technical and financial assistance to developing countries should focus on helping them to develop a proactive and strategic approach to standards compliance that includes the possibility of exit from certain markets or products if the costs of compliance would outweigh the benefits. In some cases, producers may do better by shifting to supplying local or regional markets where standards are less demanding, though this is increasingly being challenged by the spread of supermarkets with standards of their own. Alternatively, standards for some products may be more achievable than others. Where compliance is feasible, standards may serve as a "catalyst" to improved competitiveness and product upgrading more broadly, including in poor countries, as indicated by Kenya's success

in supplying European markets for fruits and vegetables (World Bank 2005b, 86–89).

In many cases, certification, rather than compliance per se, poses a significant problem for countries in export markets, as well as smallholder producers trying to sell either globally or to supermarket chains. In the case of Kenyan horticultural exports, for example, they have not been able to replicate their success in the European market in the United States, in part because of a shortage of US inspectors in East Africa. Producer organizations and public assistance in providing certification services or encouraging public-private partnerships can help to reduce these transactions costs (Timmer forthcoming). As part of the assistance package to help developing countries take advantage of increased market access resulting from any Doha Round agreement, US officials have reportedly been discussing the possibility of seeking EU cooperation in creating a mechanism of mutual recognition of one another's standards for certain imports from Africa.[6] While mutual recognition agreements have not gotten far to date, a pilot program as part of a broader Doha Round package might be more attractive.

Finally, assistance may be needed in some cases to enable developing countries with limited capacity to file WTO cases against standards that are not justified and that are truly protectionism in disguise. But low-income West African cotton-exporting countries were able to free ride on Brazil's efforts to challenge US cotton subsidies without having to expend resources themselves. More research on the degree to which free riding can address this problem would be helpful. Bown and Hoekman (2005) offer further ideas on how nongovernmental organizations and other groups might help low-income countries with legal assistance.

6. Greg Hitt, "Wanted: Rocker-Activist's Support," *The Wall Street Journal,* November 23, 2005, A4.