CHAPTER 5
AGRICULTURE

Agriculture plays a central role in the economies of low-income countries, accounting for more than 70 per cent of employment—compared with 30 per cent in middle-income countries and just 4 per cent in high-income countries. Particularly in low-income African countries, agriculture is also a major source of foreign exchange earnings and supplies incomes, basic foods and subsistence livelihoods for most of the population (UN, 2002). Women in rural Africa produce, process and store up to 80 per cent of food, while in South and Southeast Asia women do 60 per cent of cultivation work and other food production (UNIFEM, 2000). In most developing countries achieving equitable, sustainable progress on human development requires increasing food security and agricultural productivity, incomes and employment.

Agriculture is also an important source of exports and foreign exchange earnings in Latin America (UNCTAD, 1999b). Indeed, for countries with agricultural surpluses, trade can generate revenue to finance human development needs including health care, education and social security. And in many developing countries, agriculture is the main source of potential domestic surplus for investment in sectors with higher value-added potential—including food processing and industrial production—that are crucial for human development. Thus what happens—or does not happen—in agriculture has an enormous effect on efforts to reduce poverty, improve gender relations and advance human development in a wide range of developing countries.

SHOULD AGRICULTURE BE TREATED DIFFERENTLY?

Agriculture has long been one of the most hotly debated issues in international trade forums (box 5.1). Arguments ranging from 'multifunctionality' (supported by the EU, Japan and others) to 'food security and development' (most developing countries) to 'food sovereignty' (several civil society organizations) are used to justify different approaches to the treatment of agriculture.

The EU, Japan and some other WTO members argue that agriculture is multifunctional, meaning that it performs various non-commodity roles in addition to pro-

BOX 5.1 THE AGREEMENT ON AGRICULTURE: HISTORY, PROMISE AND WHERE WE ARE NOW

History and promise

Though formally covered by the 1947 General Agreement on Tariffs and Trade (GATT), agriculture was exempted from its disciplines for nearly 50 years—largely because in the 1950s the US asked to be allowed to continue protecting sugar, dairy and other agricultural products. After the US was granted a very liberal waiver from GATT obligations in 1955, article XI was laxly enforced for other agricultural producers. (Article XI prohibited quantitative restrictions on imports and exports other than duties, taxes and other charges, whether through quotas, import or export licenses or other measures.) The EU was among those that benefited from this development, using export subsidies to transform itself from a net food importer to a net exporter between the 1950s and 1970s.

After World War II different countries supported agriculture using different forms of domestic support, export subsidies and market access. Some, like the EU, created systems with no limits on production and almost no limits on subsidy spending. This tendency accelerated in the 1980s, to the point where some countries generated surpluses that could be sold overseas only with export subsidies. Indeed, GATT rules were largely ineffective in regulating agricultural trade. Export and domestic subsidies dominated many agricultural trade flows, and stiffer import restrictions were often ignored.

That changed during the 1986–94 Uruguay Round of multilateral trade negotiations. Traditional agriculture-exporting countries, developing and industrial, insisted that the Uruguay Round reverse agricultural protection. Some developing countries, particularly those from Latin America, took forceful positions in the Uruguay Round to ensure that the final agreement included meaningful disciplines on agricultural trade. The Agreement on Agriculture emerged from these negotiations in 1994 with its three pillars of market access, domestic support and export subsidies. Though key aspects of the final agreement were influenced by the second EU-US Blair House bilateral accord, key elements of that deal were never reproduced in the agreement.

Where we are now

The Agreement on Agriculture stipulated that its review would commence by 2000, and the end-2003 expiration of its 'peace clause' provides a credible deadline for reaching at least a preliminary agreement. The first phase of this reform process, from March 2000–March 2001, generated 45 proposals from 126 countries—with almost half coming from developing countries. The second phase, from March 2001–February 2002, focused on technical elaborations of the proposals from the first phase and on questions about proposals submitted by others as 'non-papers'. Among the issues raised by developing countries were food security, food aid, special and differential treatment and the problems of single commodity producers and small island developing states.

The third phase, which began in March 2002, will be the most critical since the Uruguay Round because members are expected to agree on modalities for future negotiations by March 2003—though it is not entirely clear whether this means they will agree on the rules or on actual commitments. Key elements of the new Agreement on Agriculture, including prospects for a 'development box' (see box 5.8), will also be decided during this phase. It is expected that a new agreement will be reached before the September 2003 WTO ministerial conference in Cancun, Mexico.

Country positions still remain far apart, however. While the EU, Japan and Norway are keen on arguing for agriculture's multifunctionality, developing countries from Southeast Asia and elsewhere are pushing for meaningful market access in industrial countries, demanding across-the-board reductions in subsidies. Meanwhile, the Cairns Group (with members from both industrial and developing countries) and the US are pushing their own liberalization packages.

The July 2002 US proposal is noteworthy because it calls for significant cuts in 'trade-distorting' domestic support (that is, producer subsidies) for all products and trade partners, with a ceiling of 5 per cent of the value of agricultural production for industrial countries and 10 per cent for developing countries. The US proposal also calls for tariffs to be cut to a maximum of 25 per cent for all members (after a five-year phase-in period). Both recommendations are far-reaching and ambitious—especially the first one, given levels of agricultural subsidies in many countries, including the US. The proposal will not, however, require the US to make major changes to its farm support under current Agreement on Agriculture disciplines. This, despite the recent US Farm Security and Rural Investment Act, which implies $180 billion in subsidies to farms through 2011, with more than a third coming in the act's first three years.

In contrast to the liberalizing proposal of the US, countries such as India are demanding that food security and livelihoods be made the cornerstone of a revised Agreement on Agriculture, implying a greater role for non-trade concerns. And many other developing countries, while agreeing with India, want to take an even more holistic approach to agricultural development through their proposal for a 'development box'.

Source: Anderson, Hoekman and Strutt, 1999; WTO, 2001; Biswajit Dhar, 2002, 'Subsidising US Farmers under AoA', *The Economic Times* (India), 9 August.

viding food and fibre. These include the provision of food security, cultural heritage, rural economic viability, natural disaster prevention, landscape and open space amenities, biodiversity and other environmental preservation and continued employment of aging farmers. For these countries, agriculture's multifunctionality justifies their maintenance of high agricultural protection and domestic and export subsidies.

Most developing countries, however, see the multifunctionality concept as an excuse for agricultural protection. Though many recognize the non-trade aspects of agriculture, they do not believe that the situation in industrial countries is comparable to theirs. Thus most want strong, enforceable multilateral rules that reduce agricultural protection and eliminate export subsidies in industrial countries. Developing countries also want flexibility in designing policies to ensure their food security and the ability to pursue broader development goals. Moreover, countries with large populations dependent on subsistence agriculture argue that a significant portion of their agricultural activities should be exempt from multilateral disciplines, because most of their farmers have little capacity to distort agricultural trade. They also contend that their food needs and supply gaps are a development problem that cannot be left to the vagaries of the market.

Finally, many civil society organizations, such as La Via Campesina, have advanced the idea of food sovereignty as grounds for removing agriculture from

the multilateral trade regime. Meanwhile, others favour a plurilateral structure, and still others advocate an opt-out clause until developing countries are ready to submit their agricultural sectors to the disciplines of the multilateral trade regime (Kwa, 2001).

Greater flexibility in the World Trade Organization (WTO) Agreement on Agriculture would enable developing countries facing food security threats to offer a 'positive list' of agricultural products that they would subject to the disciplines of the Uruguay Round (see box 5.1). Given the big differences in the agricultural situations of developing countries, such flexibility would also allow needed differentiation between developing countries that import food staples and those that export them, and between those that export staples and those that export commercial crops.

Increased flexibility would also allow industrial countries to address rural development needs and environmental concerns without hurting farmers in developing countries. This approach would likely also foster agricultural sustainability, because it would probably show greater sensitivity to biodiversity concerns.

Tariffs and market access

In 2005, even after meeting its Uruguay Round commitments to the Agreement on Agriculture (see below), Western Europe's average tariff on agriculture and food processing is projected to be 30 per cent. The average tariff will be even higher in Japan and the Republic of Korea, at 57 per cent. In OECD countries as a whole the average tariff on agriculture and food processing will be 36 per cent—compared with 20 per cent in developing countries. Globally, the average tariff on agriculture and food processing, at 29 per cent, will be twice that on textiles and clothing—another heavily protected sector in many industrial countries—and almost four times that on other manufactures (Anderson, Hoekman and Strutt, 1999).

In 2000 the Australian Bureau of Agricultural and Resource Economics estimated that a 50 per cent reduction in agricultural support would increase global GDP by $53 billion a year by 2010 (relative to the reference case involving no policy change), with $40 billion going to industrial countries. The bureau considered these projections conservative because they do not take into account dynamic gains from increased competition, technological advances, innovation and the like—gains that many countries expect to be as large as if not larger than those from the base projections. While the overall projections were upbeat, the bureau expected adverse effects on terms of trade for Africa, China, India, Malaysia and the Philippines.

Global models of this type are not especially helpful for a human development assessment because they aggregate on a significant scale and are often too optimistic in their calculations. As a result they end up masking distributional impacts between rich and poor people, between countries and even between entire regions

that in aggregate terms are predicted to be winners. Models that provide disaggregated estimates are much more useful because they differentiate between winners and losers. The few studies that provide disaggregated estimates of the effects of the Uruguay Round indicate that certain developing countries, especially those in Sub-Saharan Africa, will be net losers (Page and Davenport, 1994; Harrison, Rutherford and Tarr, 1996; Thomas and Whalley, 1998).

Though more useful, disaggregated models suffer from many of the same problems as those that aggregate at the global level. Benefits projected for winners often do not emerge because such models ignore the oligopolistic nature of the markets in question, assuming supply and demand relationships that do not hold in the real political economy of countries and regions.

For example, chemical companies—who have become dominant players in the seed business—are linked to grain traders and food processors in a production chain where prices become internal to the industry. In many cases the same transnational companies buy, ship and mill grain, then feed it to livestock or turn it into cereal, often crossing several national borders in the process. In the US, for example, 60 per cent of terminal grain handling facilities are owned by Cargill, Cenex, Harvest States, ADM and General Mills, 82 per cent of corn exporting is concentrated in Cargill, ADM and Zen Noh, 81 per cent of beef packing is held by ADM, ConAgra, Cargill and Farmland Nation, and 61 per cent of flour milling capacity is owned by ADM, ConAgra, Cargill and General Mills (Murphy, 2002).

State trading corporations also continue to play a major role in some developing and industrial countries. Developing countries, in the face of pressure to dismantle such operations, have argued that they are needed for both public policy reasons (such as food security) and as protection against the concentrated marketing power of transnational food and agricultural corporations.

For these and other reasons the optimistic projections made about the welfare benefits of the Uruguay Round Agreement on Agriculture have not been borne out. Murphy (2002, p. 3) argues that such projections 'were wrong about the direction prices would take, wrong about who would get the increased exports and wrong about how farmers would respond to changes in support programs'. Indeed, modelling-based projections of the benefits of multilateral trade rules are likely to remain of limited value for human development outcomes until the global trade regime takes into account the concentration of market power in transnational agricultural trade and the distribution of its benefits.

Tariffication, quotas and safeguards

The Uruguay Round Agreement on Agriculture converted all non-tariff barriers into bound tariffs that represented the ceiling to which they could be raised.[1] In industrial countries these new tariffs were subject to unweighted average reductions of 36 per cent over 1995–2000 (from the 1986–88 base period), with a minimum reduction of 15 per cent in each tariff line. In developing countries tariffs

were to be cut by an unweighted average of 24 per cent, with a reduction of at least 10 per cent in each tariff line, to be implemented over 1995–2004. No reduction commitments were required of the least developed countries.[2]

It was recognized that despite these reductions, tariffs would remain high—often prohibitively so—in many sectors. So, to provide market access for products subject to tariffs, tariff rate quotas were established (box 5.2). The tariff quota system is the only mechanism that provided real improvements in market access under the agriculture agreement. Quotas fall into two categories:

- 'Current market access opportunities', which are allocated on a bilateral basis to enable exporting countries to maintain the access they enjoyed before non-tariff barriers were 'tariffied' (that is, the access allowed under import quotas or 'voluntary' export restraints). Current access opportunities are provided to products whose imports accounted for at least 3 per cent of domestic consumption in the base period (1986–88). The current access quantity should be at least the same as imports during the base period. This can be increased during the implementation period.
- 'Minimum access opportunities', applied on a most-favoured-nation basis, guarantee access for imports with a total value equivalent to at least 5 per cent of domestic consumption in the base period. These opportunities are provided to products whose imports accounted for less than 3 per cent of domestic consumption during the base period. The minimum access quantity—the absolute quantity that a member is bound to import—is 3 per cent of domestic consumption in the base period, rising to 5 per cent by 2000 (2004 for developing countries).

The concept of market access opportunities is intended to ensure that the tariffication process does not reduce existing import levels. Nearly 40 members of the World Trade Organization (WTO) maintain a total of about 1,400 tariff quotas (table 5.1). The introduction of tariff quotas has created a complex system that lends itself to bilateral deals. In addition, the administration of tariff quotas has been such that less than two-thirds of the quotas have been filled. The quotas do not provide duty-free access. Quota tariff rates reach as high as 30 per cent, which in the industrial sector would be considered a tariff peak.

A Special Safeguard mechanism was established for imports subject to tariff conversion and specifically identified as subject to safeguards in country schedules. This mechanism allows countries to impose an additional duty (but not quantity restrictions) on a product if its import growth exceeds a certain level or import

BOX 5.2 AN EXAMPLE OF A TARIFF RATE QUOTA

A tariff rate quota is a two-tier tariff system. While the bound most-favoured-nation tariff on a certain import may be set at a relatively high rate (due to tariffication), a certain amount of that import is allowed at a much lower rate. For example, in 1999 the EU offered a quota tariff rate for 2 million tonnes of corn imports at a price of 24.45 euros a tonne. The most-favoured-nation (above-quota) rate was 48.45 euros a tonne. The actual fill rate—the share of actual imports compared with the quota quantity—was 67 per cent.

TABLE 5.1

Examples of 1995 tariff quota rates

	EU		Japan		US	
	Within-quota tariff rate	*Above-quota tariff rate*	*Within-quota tariff rate*	*Above-quota tariff rate*	*Within-quota tariff rate*	*Above-quota tariff rate*
Milk	18.0	56.1	22.0 (0–35.0)	125.1 (25.1–309.6)	7.0 (1.1–17.5)	82.6 (34.8–275.6)
Butter	26.8 (24.5–28.0)	97.1 (87.5–106.8)	35.0	264.0 (245.5–282.6)	6.6 (3.3–10.0)	58.5 (48.4–68.6)
Wheat	0	167.7 (131.5–203.9)	6.7 (0–20.0)	352.7	(n/a)	(n/a)

Note: The simple averages of the tariff rates are provided when different rates exist within a product category. The range of tariff rates is given in parentheses.
Source: UNCTAD, TD/B/WG.8/2/Add.1, 26 July 1995, table I.1.

prices fall below a certain level.[3] No proof of injury is required, and the Special Safeguard may be invoked almost automatically—without reference to whether a rise in import quantity or fall in import price below the trigger level actually had an adverse impact on domestic consumers. So far this mechanism has been used by only 38 WTO members, almost all of them industrial countries (Ruffer, Jones and Akroyd, 2002). This is because, as a result of the conditions imposed by the structural adjustment programmes of international financial institutions, many developing countries have eliminated non-tariff barriers and so have nothing to 'tariffy'.

Tariff reductions, peaks and escalation

While the Agreement on Agriculture eliminated the myriad non-tariff barriers from the agricultural trade regime, agricultural tariffs remain significantly higher than those on industrial products, partly due to the tariffication process. The average tariff on industrial goods fell from 40 per cent in 1945 to 4 per cent in 1995, yet agricultural tariffs still average 62 per cent (Beierle, 2002)—largely because industrial countries have lowered their tariffs in a way that fulfils the Agreement on Agriculture's technical requirements but violates its spirit and intent. Tariffs have been eliminated on non-sensitive and infrequently traded products that already had low rates, while tariffs on sensitive products with very high rates have been cut by the minimum 15 per cent.[4]

Moreover, in industrial countries the tariffication process has often resulted in tariffs that exceed the effective protection previously provided by non-tariff barriers. For example, in 1995 average tariffs in OECD countries were 214 per cent for wheat, 197 per cent for barley and 154 per cent for corn (Konandreas and Greenfield, 1996). Tariffication has also caused industrial countries' tariffs on some products to be much higher in 2002 than before the Uruguay Round ('dirty tariffication')—despite compliance with the technical requirements of the

Agreement on Agriculture. Higher tariffs are especially common for sensitive products of particular export interest to developing countries.

Tariff peaks and escalation also remain pronounced in industrial countries.[5] A 1999 study by the United Nations Conference on Trade and Development (UNCTAD) and the WTO found that more than half of these countries' tariff peaks applied to agriculture (including food processing) and fisheries products. Major developing country exports (such as sugar, tobacco and cotton) and those of potential export interest (such as processed foods) are often taxed at some of the highest rates—more than 100 per cent (Shirotori, 2000). OECD members impose such rates on products such as meat, sugar, chocolate and milk and other dairy products (OECD, 2001b). Fruits and vegetables also face high tariffs. For example, above-quota bananas are subject to a tariff of 180 per cent in the EU, and the rate for shelled groundnuts is 550 per cent in Japan and 132 per cent in the US. In some OECD countries tariffs exceed 30 per cent for food products such as fruit juices, canned meats, peanut butter and confections. And Canada, the EU, Japan and the US maintain tariff peaks of 350–900 per cent on food products such as sugar, rice, dairy products, meat, fruits, vegetables and fish (Shirotori, 2000).

Similarly, tariff escalation occurs in product chains of particular interest to developing countries, such as coffee, cocoa, oilseeds, vegetables, fruits and nuts (Shirotori, 2000). After the Uruguay Round effective rates of protection reached 44 per cent for wheat flour and 25 per cent for orange juice in the EU, 30 per cent for refined sugar in Japan and 42 per cent for condensed milk in the US (Lindland, 1997). Tariff escalation is probably one of the main impediments to export diversification for developing countries—and a major constraint to vertical diversification of their agricultural exports (Supper, 2000). This partly explains why most developing country exports are concentrated in the first stage of food processing and why high value-added food products account for only 5 per cent of the agricultural exports of the least developed countries and 17 per cent for developing countries overall (compared with almost a third for industrial countries). But in some cases fundamental constraints in developing countries are more important than trade barriers in industrial countries.[6]

Tariffs in developing countries tell a completely different story. For example, a study by the Food and Agriculture Organization (FAO, 1999b) assessed the impact of the Agreement on Agriculture on trade flows in 16 developing countries.[7] The study found a significant unfair asymmetry between the high continuing tariffs of industrial countries and the relatively low tariffs of developing countries. Although the study may have covered too short a period to fully assess the long-term impact on the countries studied, several case studies reported relevant experiences:

- Most of the developing countries had unilaterally reduced both their non-tariff barriers and applied tariffs under World Bank and IMF structural adjustment programmes prior to the Agreement on Agriculture's existence. Those reductions had significant distributional implications and, as indicated above, prevented the countries from using the tariffication and Special Safeguard mechanisms.

- Political economy factors kept these countries from using the declared bound tariff measures under the Agreement on Agriculture. These factors included the loan conditions imposed by international financial institutions, the political necessity of maintaining low food prices for consumers and the fear of damaging their relationships with industrial countries that provided them with preferential market access and development aid.
- Exports did not improve much during the agricultural reform period in these countries. This could be attributed to many factors, including supply constraints in many developing countries (especially the least developed) and quality, health and sanitation requirements in importing countries. There continues to be a need for greater clarity on standards for 'identical and similar conditions', particularly in terms of animal diseases. (See chapter 17 for a discussion of standards and their human development implications and impacts.)
- High tariff peaks and tariff escalation were common in export markets, especially those of industrial countries, for products of greatest importance to these developing countries.

Another study highlights the impacts of unilaterally reduced tariffs in developing countries (White, 2001). It suggests that their slashing of tariffs has allowed cheap imports of low-cost fruits, vegetables and grains that compete with (and often dislodge) domestic products and destroy local livelihoods. Whether juice from France displaces domestic juices in Guyana or heavily subsidized basic grains from the US cut into native corn sales in Mexico, such imports can have disastrous income and consumption effects on poor families—especially for women and girls within them (White, 2001).

Subsidies

Subsidies include both domestic support measures and export subsidies. Both have been the subject of intense, widespread debate and negotiation in the WTO, leading to calls for their reduction or even elimination. Such subsidies have also contributed to export dumping.

Domestic support measures

The Agreement on Agriculture's domestic support disciplines allow industrial country agribusinesses to buy and sell agricultural crops at prices below the cost of production, creating unfair competition for farmers in both developing and more efficient industrial countries (box 5.3). Indeed, many critics argue that by enabling the use of their preferred instruments for agricultural support, while cracking down on tariffs, quotas and subsidies in developing countries, the most powerful agriculture-exporting industrial countries engineered the Agreement on Agriculture so that its special and differential treatment works for them rather than for developing countries. This has had major negative consequences for food security, farmer livelihoods and employment in developing countries.

BOX 5.3 DOMESTIC SUPPORT MEASURES UNDER THE AGREEMENT ON AGRICULTURE

Most domestic support measures allowed under the Agreement on Agriculture fall into one of three categories: the 'amber box', 'blue box' or 'green box'. All measures considered distorting to production and trade (with a few exceptions) fall into the amber box. Such support is subject to reduction commitments measured through changes in the Aggregate Measure of Support, with reductions set at 20.0 per cent for industrial countries and 13.3 per cent for developing countries. But these targets are overall averages; the percentage change for specific products can be higher or lower. For countries not giving large subsidies to agriculture, the Agreement on Agriculture stipulates de minimis levels: 5 per cent for industrial countries and 10 per cent for developing countries.

The blue box, a last-minute concession to the EU that permitted the adoption of the Agreement on Agriculture, is an exception to the general rule that all subsidies linked to production must be reduced or kept within defined minimal (de minimis) levels. It covers payments directly linked to land size or livestock as long as the activity being supported limits production. Blue box proponents view its subsidies as less trade distorting than amber box subsidies. Although the blue box is a permanent provision of the Agreement on Agriculture, a number of countries—including most developing countries and the US—have called for its phase-out.

The green box covers subsidies that are expected to cause minimal or no trade distortion. Such subsidies have to be publicly funded but must not involve price support. Examples include the direct income support that the US provides its farmers, which is formally decoupled from production levels and prices, and environmental protection subsidies. No limits or reductions are placed on such support.

Other domestic support measures include the de minimis provision and the special and differential treatment provision. Special and differential treatment includes the right for developing countries—especially the least developed countries—to delay or opt out of certain liberalization commitments and to receive special market access for their exports to industrial countries.

Source: GATT, 1994; UNCTAD, 2000.

Implementation problems for developing countries include asymmetrical legal rights in the use of domestic support measures (in favour of industrial countries); lack of product specificity associated with Aggregate Measure of Support commitments, leading to the circumvention of tariff reductions on products of greatest interest to them; non-recognition of 'negative' Aggregate Measure of Support calculations;[8] and inflation and exchange rate fluctuations that can make it difficult to stay within the boundaries agreed under the Aggregate Measure of Support.[9]

The amount of domestic support provided in the base period (1986–88) was used to calculate reductions in the Aggregate Measure of Support for the 'amber box' (see box 5.3). The higher support was in the base period, the more it remained, even after compliance with the agreement. In most industrial countries declarations of such support exceeded 20 per cent of agricultural GDP, with almost half exceeding 50 per cent. Yet many developing countries claimed a zero value in the

base period because they either could not provide such support fiscally or were politically constrained from doing so by IMF and World Bank structural adjustment programmes. This has restricted their ability to take advantage of the 'amber box', which many of them can use only within de minimis limits.

Similarly, because the Aggregate Measure of Support is presented in aggregate rather than product-specific terms, industrial countries have been able to increase their domestic support for sensitive products of export interest to developing countries (rice, sugar, dairy products) as long as they are able to meet their overall reduction commitments. By contrast, relatively high inflation in developing countries has led to a negative bias in comparisons and calculations under the Aggregate Measure of Support—a problem compounded by the fact that countries can be challenged by other WTO members if they offset 'negative' product-specific support against positive non-specific support when calculating the net sum of their subsidies. (India, for example, has been challenged by some WTO members for taking this approach.) Overall, the amber box has institutionalized a huge imbalance between the ability of industrial and developing countries to legally use domestic support measures.

There is also concern that blue box subsidies will be institutionalized rather than viewed as transitional, while different interpretations of permitted green box measures leave it open to the charge that it is too broadly defined and biased in favour of subsidies that only industrial countries can afford. Further, there are questions about whether many such subsides (especially direct income support to US farmers) do not distort trade—both because of their significant size and because there is widespread agreement that decoupling does not sterilize the impact of production levels and prices on export volumes. Some other measures allowed in this category, such as the provision of infrastructure services (including irrigation), could also have significant production-enhancing effects, especially when the initial base of such services is weak (Ruffer, Jones and Akroyd, 2002). The development argument can be made that investment in such production-enhancing measures should be allowed for developing countries but treated as part of a 'development box' (see below).

Export subsidies

The Agreement on Agriculture imposed the first meaningful disciplines on agricultural export subsidies. Countries maintaining such subsidies made commitments on their volume and value in specific product categories. These levels were subject to reductions of 36 per cent in value and 21 per cent in quantity for industrial countries over a 6-year period and 24 per cent in value and 14 per cent in quantity for developing countries over a 10-year period. Countries not maintaining export subsides were prohibited from introducing them in the future.

A major implementation problem with export subsidy reduction commitments is that only a few industrial countries have the right to use them. The EU

accounts for 90 per cent of global export subsidies currently recognized under the Agreement on Agriculture.

Export credits, used primarily by the US, should be treated as export subsidies because of their similar trade impacts. They remain one of the main outstanding implementation issues and are to be negotiated under article 10 of the agreement on agriculture. Export credits are usually in the form of guaranteed bank loans at competitive interest rates and in some cases have the same effect as export subsidies in encouraging exports. They are one of the most popular means of circumventing export subsidy commitments. In 1998 the US export credit guarantee programme rose to $5.9 billion, nearly twice its amount in 1997 (UNCTAD, 1999).

These concerns meld with others, such as banning export controls and other export prohibition measures such as export taxes and restrictions—on food products, among others. These concerns have not been adequately dealt with in the Agreement on Agriculture. Josling (1998) proposes that export taxes be treated similarly to quantitative restrictions because it is inconsistent to leave in place the possibility of export taxes and quantitative restrictions that have immediate and harmful effects on developing country food importers.

In many developing countries export subsidies have had even more adverse effects on food security, livelihoods and employment than many domestic support measures. Export subsidies have allowed the continuing export of industrial countries' agriculture surpluses at prices below production costs, depressing world prices and causing import surges and agricultural dumping in developing countries. It has been estimated that the billions of dollars the EU and the US spend every year subsidizing their farmers—and protecting them from more efficient producers in developing and other industrial countries—allow them to export crops at prices more than a third lower than the cost of production. As a result 'some of the world's poorest countries are competing against its richest treasuries' (Oxfam International, 2002, p. 11). European dumping of milk powder in Jamaica vividly illustrates this point (box 5.4).

Indeed, subsidized agricultural output in industrial countries—through export subsidies and trade-distorting domestic support—leads to unfair competition in the markets of developing countries. It also obstructs imports from other developing countries, leading to significant income losses for efficient, low-cost, non-subsidized, agricultural exporters. So, for example, even though EU dairy producers have some of the world's highest production costs, they control half the world market (UNCTAD, 1999c).

Such subsidies offer potential short-term benefits only when they subsidize food imports for developing countries that are dependent on them or when they mitigate high international food prices for developing countries. But export subsidies rarely mitigate high international prices, because they are a support arrangement that results in the highest subsidies and food aid to developing countries when their needs are lowest—and the lowest subsidies and food aid when needs

BOX 5.4 EUROPEAN DUMPING OF MILK POWDER IN JAMAICA

Again and again, dairy farmers in Jamaica have to throw away fresh milk because they can no longer sell all the milk their cows produce. They are losing the battle against cheap dairy imports—especially subsidized milk powder from the EU.

Aubrey Taylor, president of the St. Elizabeth dairy cooperative, explains: 'There is no market for fresh milk. No processor in Jamaica has any contract with any dairy farmer. It's a game of chance. Yes, milk powder is cheaper than our local milk. But what you must realize is that imports of milk powder have export subsidies on them. The Jamaican farmer has no subsidies whatsoever. Our production figures are true costs.'

Until the early 1990s Jamaican dairy farmers were reasonably protected against imports, and the sector's output was growing fast. But then the Jamaican government liberalized the dairy market as part of adjustment policies mandated by the World Bank, and the country became increasingly flooded with foreign milk powder. Most imports originated in Europe, where an estimated 4 million euros a year were spent subsidizing exports for Jamaica. Jamaican dairy processors—the largest and most influential being Europe-based Nestle—preferred cheap and easy European milk powder, and marketing opportunities for fresh milk became increasingly difficult. Nestle had previously said that it would leave Jamaica if tariffs were increased, and in recent years has increasingly turned its back on local production.

In 1999 the Jamaican dairy sector called on the European Commission and EU members to eliminate subsidies on EU dairy exports to Jamaica. But that plea fell on deaf ears, as did a recommendation to increase import duties on powdered milk. Despite its Uruguay Round commitment to reduce export subsidies, the EU still exports milk at prices well below production costs.

Source: Oxfam International, 2002.

are highest (because subsidies are given most when international prices are lowest and least when international prices are highest). Moreover, such subsidies are rarely accompanied by technical assistance and financial support for agricultural research and development, with the goal of reducing developing countries' vulnerability and dependence on food imports. Thus such subsidies cannot be considered supportive of sustainable human development even if they result in lower food prices for poor consumers in the short term.

Although eliminating export subsidies is an important goal, doing so will not end export dumping. Export dumping is a wider problem and can be caused as much by domestic production subsidies as by export subsidies.

Export dumping

Export dumping is widespread.[10] It is the consequence of low-priced exports resulting from overproduction, even though such production has not benefited from export subsidies. Critics allege, for example, that export dumping is a structural feature of US agriculture. Combining data on producer costs and government support payments and estimates of transportation costs, Ritchie, Wisniewski and

Murphy (2000) estimate that US wheat and cotton have been dumped onto the world market for up to 30 per cent less than the cost of production.

Most of the benefits of such exports have accrued not to small US farmers but to giant US agribusinesses. Most farmers in both developing and industrial countries are price-takers who depend on large, often transnational corporations for their inputs and the sale of their products. Developing country farmers who depend on corn for their livelihoods typically do not compete with US farmers but with the giant companies that dominate the export of grain to their countries—companies that are the prime beneficiaries of US farm policy (Murphy, 2002). Farm-gate prices that do not capture the cost of production in the EU or US are transferred globally through transnational corporations' food production chains. This globalization of agricultural dumping requires multilateral rules, yet the Agreement on Agriculture has failed to address it. In fact, it can be seen as legitimizing it by encouraging decoupled payments, which have not been effective in controlling export volumes.

Some economists argue that such dumping should be welcomed because it is, in effect, a subsidy to developing country consumers. And some developing country governments appear to have internalized this argument. But this view is shortsighted, because cheap imports send the wrong message to the importing country's agricultural sector, reinforcing an existing bias against it. Dumping can have serious long-term consequences for agricultural production and for the livelihoods of the poor producers who make up a significant portion of the population in developing countries, sometimes outnumbering consumers. Dumping also reduces farm incomes, employment and food security—and so human development.

A far more preferable and sustainable approach to ensuring low food prices for consumers would be for developing countries, with technical and financial support from industrial countries, to invest in significant agricultural research and development for the production of their basic food staples. India, which spends more money on agriculture than any other Asian country, is testimony to this given the dramatic improvements in its food security since the mid-1960s (Fan, Hazell and Thorat, 1999). In India the efficacy of spending on agricultural research and extension was second only to that of roads (and greater than education, rural development, irrigation, power, soil and water and health). Every 100 billion rupees of investment in research and development increased agricultural productivity by 7 per cent.

Sustained investments in research and development would probably also allow developing countries to liberalize their agricultural sectors over the medium term by reducing protection for food staples. Yet in many developing countries spending on agricultural research and development has actually been falling because of budget pressures and internally or externally induced structural adjustment programmes.

The 'peace clause'

Article 13 of the Agreement on Agriculture sets out conditions under which its provisions supersede other WTO rights and obligations. This 'peace clause' is applicable

for 9 years and set to expire at the end of 2003. The clause was designed to reduce the threat of trade disputes during the period of farm trade reform, especially in industrial countries. Its expiration will subject agricultural subsidies to the same disciplines as industrial subsidies. Any extension of the peace clause will require consensus, giving developing countries important political leverage in negotiations on agriculture.

At present, however, the green box support measures cannot be subject to countervailing duty action or other subsidy action nor the subject of complaints that they impair tariff concessions. Domestic and export subsidies that are not in breach of the reduction obligations cannot be legally challenged under the subsidies agreement. This means that countries are powerless to prevent the loss of export markets. While countervailing duties can be applied where such subsidies cause injury to domestic producers "due restraint" is expected to be shown in initiating countervailing duty investigations.

Subsidies: the overall picture

OECD members provide about $1 billion a day in agricultural subsidies—more than six times what they spend on official development assistance for developing countries (UNDP, 2002). Since 1997 these subsidies have increased 28 per cent; although EU and US spending under the Aggregate Measure of Support decreased, most of this spending was simply transferred into the 'green box'. As green-box spending surged, agricultural support in OECD countries increased—instead of dwindling in accordance with the intent of the Agreement on Agriculture. Indeed, the agreement appears to have led some industrial countries to start providing expensive subsidies, closing off cheaper, regulation-based controls that could benefit human development.

Half of OECD spending on agricultural support occurs in the EU, and 39 per cent in Japan. US support for agriculture rose to $28 billion in 2000, and the 2002 US Farm Bill (issued after the Doha conference) authorizes $180 billion in domestic farm support over the next 10 years. Some of the main reasons for and implications of the US legislation are analysed in box 5.5.

FOOD SECURITY, EMPLOYMENT AND LIVELIHOODS

The Agreement on Agriculture directly affects rural livelihoods, food security and farmer incomes. Thus all WTO members—particularly developing countries—need to have adequate policy space and flexibility to ensure food security and protect the employment and livelihoods of their populations.

Agriculture's non-market roles

Agriculture not only produces goods that are marketable and tradable, it also provides non-tradable public goods and services that are undervalued by the market. These public goods and services include environmental conservation, rural development, balanced regional development and, above all, food security.

BOX 5.5 THE 2002 US FARM SECURITY AND RURAL INVESTMENT ACT (FARM BILL)

The US led the calls for the Uruguay Round, and during it pushed for an Agreement on Agriculture. US negotiating positions on trade and agriculture have consistently echoed those of the Cairns Group, made up of the 18 industrial and developing countries most attached to liberalization of agricultural markets. Despite this and its international commitment to cut agricultural subsidies and tariffs, in May 2002 the US passed an extremely expensive piece of domestic legislation. The 2002 Farm Bill reinstates government payments intended to make up any shortfalls between market prices and government-set target prices—so-called counter-cyclical payments.

The Farm Bill governs not just agricultural production but also measures linked to agriculture and trade (export subsidies, credits and promotion), nutrition (including food entitlements for poor people), conservation, forestry, energy, research, rural development and credits for producers. The bill increases agricultural subsidies by almost 80 per cent, with $180 billion provisionally allocated over the next 10 years. Though such payments can be reduced if their value violates the Agreement on Agriculture, such amounts run counter to the spirit of the agreement and to the recent US proposal advocating liberalization of agriculture (see box 5.1).

Indeed, and especially against that background, the Farm Bill provoked enormous outrage in world trade circles. The contradictions between domestic politics and international trade policies could not be clearer. It is also ironic that the US has opened itself to criticism in this area at the same time that negotiators in Geneva are discussing ways of reducing the domestic support of WTO members—as a direct result of the US proposal seeking reductions in all 'trade-distorting' domestic support. With the new legislation the US can no longer pretend that it is trying to limit production (as in the past), because it has reinstated a target price through the use of counter-cyclical payments. This reintroduction of 'amber box' spending (agreed by all members as distorting production and trade and subject to scheduled reductions through the WTO) is what has upset the world community—that and the now-visible level of US spending on farm support, which is not new but has become harder to hide.

The Farm Bill is clearly not beneficial for developing country producers. It will stimulate production in the US that is not warranted by market signals. Unwanted production will flood world markets, not only directly in commercial sales and (often inappropriate) food aid, but also in the form of artificially cheap feed for livestock. Moreover, the bill is not good for most US farmers. It subsidizes agribusinesses, allowing them to buy very cheap, with the government then making up some of the difference with direct payments to farmers. (In 1998 the average US corn farmer received $30,000 in government subsidies and $8,000 in net income.) The loss on commercial sales is so large that most subsidies simply repay bank loans. Who benefits? The company buying corn for $1.80 a bushel that costs $2.70 a bushel to grow.

Rather than disciplining the market power of transnational agribusinesses, the US government is providing them with massive subsidies. In turn, US production of certain crops (such as wheat) is so high that the artificially low price in the US market becomes the world market price. Developing country farmers find themselves unable to compete with this artificial price and cannot compete in local markets with the rising imports that result. And producers in both industrial and developing countries are left without livelihoods, despite the value of their products.

The Farm Bill continues a long history of US government refusal to confront the lack of competition in its agricultural markets, which leaves US farmers with little choice in where to buy their inputs and where to market their produce. Over the past few years the US has experienced an unprecedented increase in market concentration in nearly all agricultural sectors—for example, three firms handle more than 80 per cent of US corn exports. Many US farmers opposed the Farm Bill, and some have proposed a Food From Family Farms Act to

restore farmers' ability to earn their income from the market. Such an act would require regulating oligopolistic power in the market. Elements of this proposal were discussed during the Farm Bill hearings and are under consideration as separate legislation.

Source: Murphy, 2002; Biswajit Dhar, 2002, 'Subsidising US Farmers under AoA', *The Economic Times* (India), 9 August.

It is an almost universal belief that the right to food is inalienable since food is essential to life. There is also widespread agreement that food should be accessible to everyone, not just those with purchasing power. The 1996 World Food Summit concluded that 'food security exists when all people, at all times, have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life' (FAO, 1996, article 1). Amartya Sen's entitlements approach provides a useful framework for exploring the impact of trade policy on food security at the household level (see Sen, 1999).[11] But the framework's focus on the household level misses important broader issues for food security, such as a country's foreign exchange constraints (Green and Priyadarshi, 2001). The two aspects—the household level and the broader issues—are equally important for food security and human development.

A fundamental tenet of the food security argument advanced by developing countries is that agriculture is a way of life and the means to sustainable livelihoods and employment—and so essential to human development for the vast majority of their populations. Even small changes in agricultural employment or prices can have major negative effects on food security and human development. Similarly, cheap or subsidized imports can jeopardize food security and rural livelihoods.

Developing countries' food security concerns differ from those of industrial countries because food accounts for a significant share of household spending among the absolute poor and middle-income groups who make up most of their populations. In Haiti, for example, rural households spend two-thirds of their income on food. For landless peasants—the poorest of the poor—this percentage climbs even higher (Oxfam International, 2002). By contrast, food accounts for a small and falling share of household spending in industrial countries.

There is widespread agreement that food security in developing countries is one of the most valid non-trade agricultural concerns. Although the Agreement on Agriculture recognizes the need to take this into account and countries are allowed to exempt public stockholdings for food security reasons, some argue that the agreement does not pay sufficient attention to ensuring food security or even food supply to world markets. (Export controls and restrictions, for example, work against this.) Critics also believe that food security is an important socio-political concern and national security issue that needs to be explicitly addressed in trade negotiations, especially for large developing agrarian economies.

From a human development perspective there can be little doubt that universal food security must be made a priority. Trade policy should not be the exclusive

or even predominant focus of strategies aimed at achieving this objective: as Sen's framework indicates, trade policy is merely one means of ensuring or contributing to food security, and should not be viewed as an end in itself. Developing countries have traditionally had a range of domestic policy instruments to deal with food security, farmer livelihoods and other agricultural development objectives. But the design and implementation of certain parts of the Agreement on Agriculture—especially its disciplines on tariffs, domestic support and export subsidies—have constrained some of those policy choices. These have had different implications for different developing countries depending, for example, on whether they are food-importing or -exporting countries. The Agreement on Agriculture's impacts also differ for developing countries for whom food crops comprise a significant share of their tradables and for those who are not reliant on significant food imports but largely trade in commercial crops.

Developing countries' growing trade deficits in food

The emerging empirical evidence on subsidies has serious implications for food security, livelihoods and employment in developing countries. With rapidly growing trade, developing countries have become much more dependent on food imports. In 1997 food trade totalled $460 billion—four times its value 20 years earlier. Developing countries' share of imports rose from 28 per cent in 1974 to 37 per cent in 1997, but their share of exports increased from 30 per cent to just 34 per cent. Thus the trade balance of developing countries in food commodities has turned negative, with a net deficit of $13 billion in 1997 (FAO, 1999a). Since the early 1970s the drop in food exports relative to imports has been especially sharp for the least developed countries (figure 5.1).

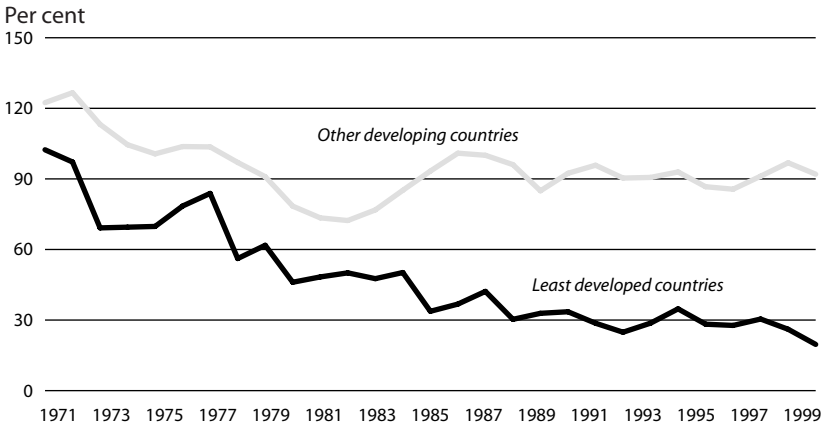
The Food and Agriculture Organization study of 16 developing countries cited earlier (FAO, 1999b) also finds a growing imbalance between exports and imports. In Egypt merchandise imports grew 50 per cent between 1995 and 1997 and the food bill increased 37 per cent—while exports rose only 17 per cent. Most of the other countries studied showed remarkably similar experiences with import surges, particularly of poultry and skim milk powder.

By contrast, few aggregate improvements in agricultural exports occurred during the agricultural reform period in these countries. Only Thailand increased food exports—although some case studies pointed to good prospects for non-traditional exports, among them fruits and vegetables from Bangladesh, Fiji, Guyana, Jamaica and Pakistan. In all, however, the FAO study concluded that while trade liberalization led to an immediate and asymmetrical surge in food imports, the countries studied could not increase agricultural exports significantly because of protected markets and export subsidies in industrial countries. In some cases where countries were successful in raising the volume of exports, their value fell.

An even more serious trend, according to the same FAO report, is the rise in the trade deficit in cereals—from 17 million to 104 million tonnes over 30 years.

FIGURE 5.1

Food exports as a share of food imports in the least developed and other developing countries, 1971–99



Note: Excludes fish.
Source: UNCTAD, 2002.

This development contradicts the flow of history: most countries, industrial and developing, have achieved food security through enhanced domestic production. Moreover, projections for the next 20 years indicate that almost all the increases in world food demand will take place in developing countries (FAO, 2000; Pinstrup-Andersen, Pandya-Lorch and Rosegrant, 1999). Historical experience shows that ensuring physical access to food in developing countries will be possible only if there is a minimal level of national self-reliance. Several factors can make it difficult to achieve such self-reliance, including limited foreign exchange for imports (and the high opportunity costs for other sectors, especially technology development, of spending scarce foreign exchange on food imports), an inability to increase exports quickly and poor physical infrastructure.

Limited national self-reliance for food has serious gender and other distributional dimensions. Thus the erosion of domestic food production resulting from trade liberalization has multiple repercussions for food security, social cohesion in rural communities and women's income, employment and status.

Food-insecure countries

Food-insecure countries must be differentiated from those that are not. The Marrakesh Agreement, the culmination of the Uruguay Round, recognized net food-importing developing countries as deserving special consideration. As indicated, even the most optimistic projections of welfare changes from agricultural liberalization acknowledge losers as well as winners. The losers include many developing countries—including some of the poorest least developed countries, because they are net food importers.

The losers were expected to suffer from rising food prices resulting from cuts in subsidies in food-exporting countries. The WTO Committee on Agriculture—and so the Agreement on Agriculture—identify net food-importing developing countries as a separate group from least developed countries (as classified by the UN) and low-income food-deficit countries. This decision committed WTO members to, among other things, provide sufficient food aid to meet developing countries' needs during the reform programme and to include technical assistance for agricultural productivity in aid programmes for the least developed countries and net food-importing developing countries.

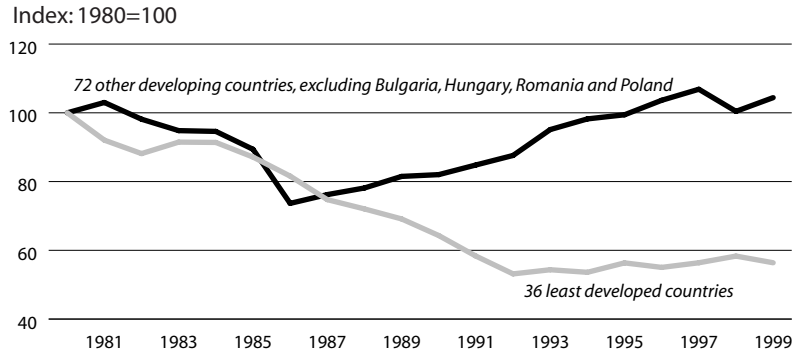
Despite this agreement and the repeated requests of these countries, little has been done because the agreement does not legally compel industrial countries to provide food aid or technical assistance. According to Hesham Youssef (1999), a senior official in Egypt's Ministry of Foreign Affairs, food aid commitments to the least developed countries and net food-importing developing countries dropped after the Marrakesh Agreement. Between 1994 and 1997 food aid in cereals dropped by nearly two-thirds for net food-importing developing countries—and for Egypt by more than three-quarters. In addition, many donors (including Australia, Canada and Japan) reduced their technical and financial assistance during this period (though Norway increased it).

Over the past two decades the least developed countries and net food-importing developing countries have become less able to finance normal commercial imports of basic foods, reflecting weak growth in their export earnings and changes in their terms of trade (Shirotori, 2000). Since 1980 the least developed countries have accounted for a shrinking share of world exports of goods and services (figure 5.2). Moreover, in the late 1990s food imports accounted for a large share of merchandise imports in the least developed countries: more than 20 per cent in almost 20 countries, more than 30 per cent in more than 10 countries and 40 per cent or more in 4 countries (figure 5.3; see also figure 5.1).

Because a human development perspective places high priority on ensuring food security at all levels—country, household, individual—this trend must be reversed. Concerns about weak implementation of the Marrakesh Agreement's provisions for least developed and net food-importing developing countries were reflected in the Doha decision on implementation issues and concerns. The WTO Committee on Agriculture established an inter-agency panel to examine ways to improve access to multilateral financing for the least developed and net food-importing developing countries, to meet their short-term financing needs for commercial imports of basic foods (WTO Committee on Agriculture, 2001).[12] As part of its analysis the panel also considered the feasibility of establishing a revolving fund proposed by a group of net food-importing developing countries. The panel's final report recommended, among other things, improving access to existing IMF facilities and further examining the feasibility of establishing a borrowing facility for private food importers in least developed and net food-importing developing

FIGURE 5.2

Shares of world exports of goods and services from the least developed and other developing countries, 1980–99



Source: UNCTAD, 2002.

countries (WTO, 2002). Discussions on the modality for such a facility continue in the sessions of the Committee on Agriculture.

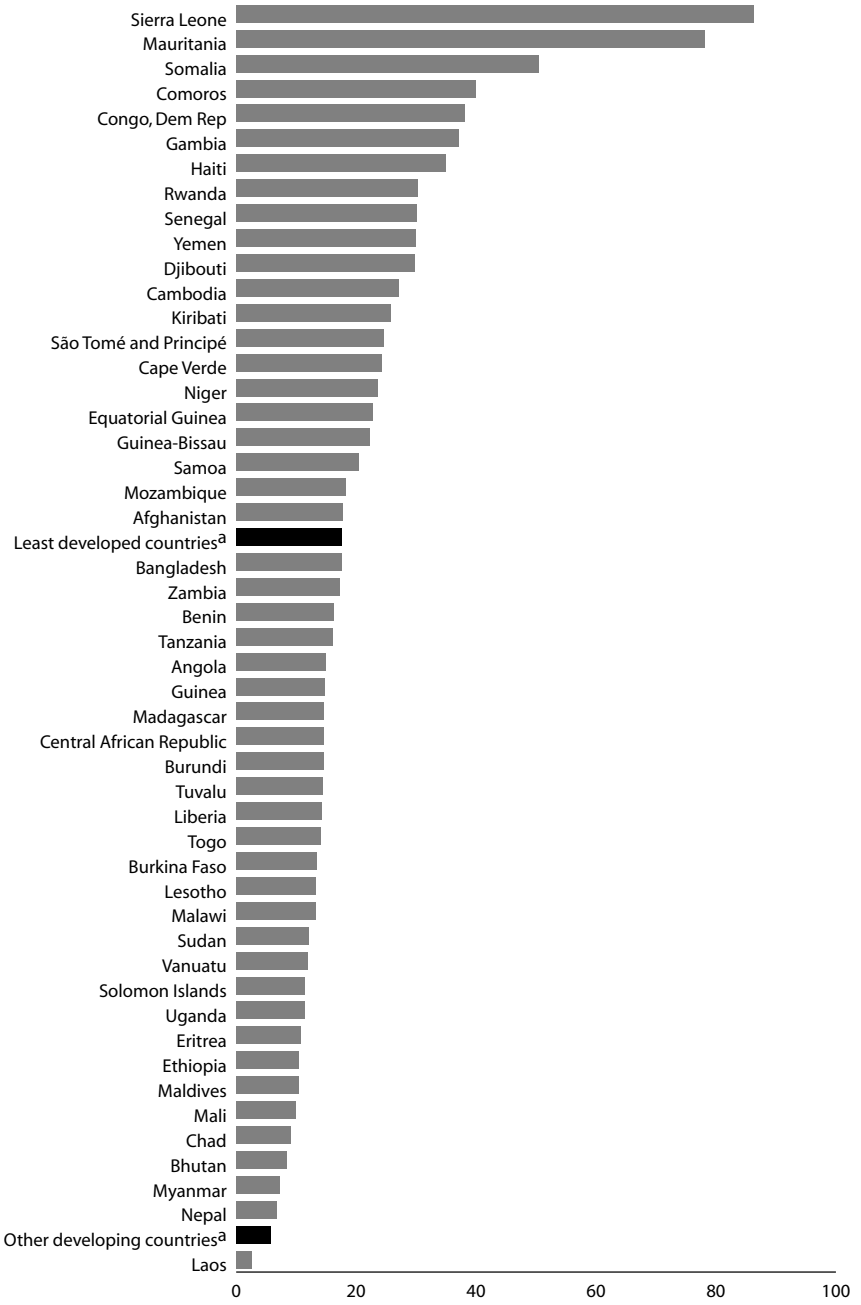
At the country level a necessary question is whether the least developed and net food-importing developing country groupings capture all the countries that merit food security consideration in the context of the Agreement on Agriculture. Different views and criteria have been suggested. Diaz-Bonilla, Thomas and Robinson (2002), for example, categorize 167 countries using five measures of food security. They conclude that some of the categories used by the WTO appear inadequate to capture food security concerns. The authors classify as food insecure only 10 of the 18 developing countries identified by the WTO as net food-importing (11 if Egypt is included because of its high trade stress). But they identify many other food-insecure countries not included in this category.

By contrast, the UN list of least developed countries corresponds far more accurately to countries suffering from food insecurity. Diaz-Bonilla, Thomas and Robinson find that just three of the least developed countries are not food insecure. The authors also find a number of developing countries that are not among the groups of least developed or net food-importing countries—including El Salvador, Georgia, Mongolia and Nicaragua—but have food security profiles similar to others considered more vulnerable. The authors conclude that the category of net food-importing developing countries should use the least developed countries as its starting point, but include others classified as food insecure based on objective criteria. Whatever criteria are used, such a change would significantly increase the number of countries classified as food insecure.

Diaz-Bonilla, Thomas and Robinson also show that some industrial countries (Japan, Norway, EU countries) and high-income developing countries (Republic

FIGURE 5.3

Food imports as a share of all merchandise imports in the least developed countries, by country, 1997–99



Note: Excludes fish.
a. Weighted average.
Source: UNCTAD, 2002.

of Korea) that have used multifunctionality to argue that food security is a national concern would not qualify as food insecure. In short, the study shows why WTO discussions on food security should be limited to food-insecure developing countries—while expanding the list of such countries.

Employment and livelihoods

Surging food imports have had severe employment effects in some developing countries. In Sri Lanka, for example, a significant increase in food imports since 1996 has caused a decline in domestic production of many food products—reducing rural employment. To sustain agricultural development and food security, the country must have greater flexibility in providing support to agricultural production in the short to medium term (FAO, 1999b).

Similar effects on farmer employment and livelihoods emerged in the Philippines after it signed the Agreement on Agriculture and in Mexico as a result of the North American Free Trade Agreement (NAFTA). Although NAFTA is not a WTO agreement, its agriculture agreement's effects on the employment and livelihoods of Mexican farmers are instructive (box. 5.6).

Implications of different types and scales of agricultural production

Dominant forms of agricultural production are fundamentally different in industrial and most developing countries. Differences stem not only from the technological inputs and production models used in subsistence and industrial agriculture, but also from the organization and basic objectives of these two production types.[13] The significant market failure and other institutional differences between developing and industrial countries increase the challenge for developing countries of shifting from traditional to non-traditional crop production. These differences also raise serious doubts about whether a trade regime based on market access can ensure farmer livelihoods and agricultural sustainability in developing countries—because the regime was designed on the assumption that industrial agriculture predominates in all countries. That is clearly not the case in most developing countries.

The agricultural economy of the Philippines, a middle-income developing country, illustrates some of these issues (Pascual and Gilpo, 2001). Although subsistence and industrial agriculture coexist, most of the country's farming involves small-scale production of traditional food and cash crops such as rice, coconuts, corn and other vegetables. These are typically cultivated on small plots averaging 1.5 hectares. Manual labour predominates; though some mechanization has occurred in rice production, there is very little in corn. As a result productivity is much lower than in industrial countries, where average rice yields are three times those in the Philippines—and corn yields are five times.

Moreover, in the Philippines the mechanized farming typical of industrial agriculture in industrial countries is found primarily on plantations dominated by

BOX 5.6 EFFECTS OF AGRICULTURAL TRADE AGREEMENTS IN THE PHILIPPINES AND MEXICO

The Philippines and the Agreement on Agriculture

The Philippines experienced its first agricultural trade deficits since the 1970s in the six years following the 1994 Uruguay Round agreement. A net food exporter from the 1970s until the 1990s, the Philippines became a net importer by 2000, including from other Southeast Asian countries. In addition to significantly reducing domestic self-sufficiency in staples such as rice and corn, this change further depleted the country's foreign exchange reserves—already strained by debt. The shift has also hurt rural employment and livelihoods.

Agricultural export earnings were expected to increase by billions of pesos a year after 1994, generating 500,000 additional jobs a year. But instead, traditional exports such as coconuts, abaca and sugar have lost markets. Corn production suffered significant negative growth in 1994, 1995, 1998 and 2000 (from –2 to –12 per cent), partly because of cheaper subsidized imports. With incomes falling, some corn farmers in the southern Philippines have abandoned farming. Moreover, farms once devoted to staple crops have been converted into agribusiness plantations, industrial zones and real estate sites, displacing many rural people from their livelihoods and employment. By 1998 the agriculture sector had lost an estimated 710,000 jobs, and by 2000 another 2 million. Although the East Asian financial crisis and other factors played a significant role in this process, so did the Agreement on Agriculture.

Mexico and the North American Free Trade Agreement

Corn is more than Mexico's staple food: it plays a central role in the country's cultural heritage, with legend citing it as the source of humankind. But since signing the North American Free Trade Agreement (NAFTA) in 1994, Mexico has been flooded with corn grown by US farmers. Subsidized by billions of dollars from the US government, these farmers grow surplus crops for massive exports. Between 1993 and 2000 Mexican corn imports increased eighteen-fold. About a quarter of the corn consumed in Mexico now comes from the US, and that share is projected to increase. Cheap corn should mean cheaper food—yet the price of corn flour tortillas has not dropped. Prices stay high because a cartel of companies holds a monopoly on sales.

Small Mexican corn farmers—who account for 29 per cent of rural employment (1.7 million workers)—cannot compete with cheap corn imports from the US. In the absence of measures mitigating the negative distributional impacts of denying protection to small corn farmers, income and livelihood losses hurt women and poor farmers the most. Female corn farmers are typically engaged in subsistence production to feed their families or sell their produce in local markets. Poor farmers receive none of the huge subsidies that support their US competitors—and the small subsidies they once received from the Mexican government were slashed because of NAFTA.

Poverty has forced many poor farmers off the land, increasing migration to cities. The most vulnerable are the poorest peasants, who make up 40 per cent of Mexico's corn farmers and eat all the corn they grow. In theory the falling price of corn should not have affected them because they never sold their crops. Yet they have suffered because those slightly better off felt the squeeze and, as their incomes fell, could no longer afford to hire casual labour. Such jobs were crucial to the poorest farmers, and without this income they cannot survive on their land.

Beyond family tragedies is the shrinking of corn biodiversity—an important gene pool for the entire world. The poorest farmers were more likely to grow types of corn that can

withstand infertile soils and other hostile environmental factors. Moreover, all these changes have come about at breakneck speed. NAFTA projected that the price of Mexican corn would fall in line with international prices over a 15-year period. It happened in just 30 months.

Source: Pascual and Gilpo, 2001; Oxfam International, 2002; Beneria and Mendoza, 1995.

foreign transnational corporations. Such plantations account for a small portion of the country's agricultural production and overall employment, and remit significant portions of their profits overseas. This situation—in a middle income country with relatively high education and health indicators—illustrates the difficulties of speaking of a 'level playing field' and 'free market competition' between subsistence and industrial agriculture. Subsistence agriculture like that in the Philippines is widely prevalent in developing countries, while transnational corporate industrial agriculture is largely a phenomenon of industrial countries.

Shifting from traditional to non-traditional agricultural exports requires intensifying inputs and upgrading technologies, and so involves dilemmas, choices and consequences (box 5.7). And even when circumstances are favourable—with generous development assistance and assured export markets—the results can be dismal.

Achieving human development goals will continue to be difficult as long as the Agreement on Agriculture is based on a market access paradigm that assumes all countries can engage equally in market-oriented agricultural production. The assumption that intensifying inputs and upgrading technologies can level the playing field between industrial and developing countries in the short to medium term also raises serious questions. Such policy measures would have serious distributional impacts and gender implications.

Food security and sustainable livelihoods are important gender concerns. Where women are mainly involved in traditional food production and men in non-traditional cash crop production, shifting from the former to the latter translates into benefits that favour men. Female household members typically lose their already limited control over cash crops and have to increase their household and cash crop work—increasing the gender bias in agricultural production (Campbell and Warner, 1997; Cagatay, 2001). Furthermore, even when women find work in commercial agriculture, they continue to be responsible for unpaid household labour.

Moreover, even where women's employment rises as a result of a shift to export-oriented production, they benefit only if they directly receive the higher prices of exported crops. Whether that happens depends on a host of factors often weighted against women: control over land and other productive resources, preferences for male labour as agricultural production becomes mechanized and access to credit, training and technology. To the extent that tax incentives for export promotion imply budget cuts for social services, women and children are affected most, both because of the direct effects of such cuts on health and other social

BOX 5.7 MOVING TO NON-TRADITIONAL EXPORTS: THE EXPERIENCE IN CENTRAL AMERICA

In the 1980s Central America's debt crisis led to the promotion of non-traditional agricultural exports, with a focus on input-intensive methods. This policy, supported by the US Agency for International Development, encouraged exports from the region to markets worldwide, especially the US. Products promoted included melons, strawberries, broccoli, cauliflower, snow peas and squash shipped directly to US supermarkets.

Many small Central American farmers had little choice but to convert to the new crops. Trade policies had undercut the viability of traditional corn and bean cultivation, leaving them without the safety net of basic grain production for domestic markets and household consumption. Although the drive for new export crops led to impressive increases in production and exports in some countries, non-traditional agricultural exports often undermined the economic positions of small farmers. Among small farmers, common problems during this period included:

- Fluctuating prices and services. Early adopters of non-traditional crops were given extensive support: credit, full-time extension workers, certified disease-free seeds and purchase contracts with export companies. The first year of conversion was an outstanding success. Although seeds and contracts were not provided in the second year, more farmers planted the new crops based on the experiences of their peers the previous year. But many farmers suffered heavy disease losses because of the poor-quality seeds used, and about half defaulted on their credit. Moreover, US prices dropped in response to cheaper imports of these crops from other countries. In the third year all farmers defaulted on their credit in some areas. As a result the market began to show a bias against small producers. Larger producers were offered contracts more readily because packers and exporters thought they had better quality controls and because their smaller number made it easier and cheaper to contract with them.
- Limited access to capital and credit. Start-up costs were much higher for non-traditional than traditional crops. In one country a small farmer's costs for producing snow peas were nearly 15 times those for basic grains. Moreover, credit was difficult to obtain because of stringent criteria and high interest rates.
- Low bargaining power. Farm size was a major determinant of price: small farmers had less bargaining power and were more vulnerable to exploitation by intermediaries. Moreover, non-traditional crops offered the worst of all marketing worlds for small farmers. Such crops were perishable and not consumed locally—so if an export contract failed to materialize, the farmer could not get a good price locally.
- Limited knowledge and technology. Fairly high technological sophistication was required for non-traditional crops, such as in dealing with the risk of crop failure from pests and diseases. But large farmers had easier access to new technologies because they could afford to buy foreign technology and hire foreign experts. By contrast, small farmers depended on unreliable extension services. Moreover, foreign quality controls were difficult and expensive to comply with, and for small farmers often posed a major barrier to entering export markets.
- Dependence on costly inputs. New high-yielding seed varieties have been called 'high response' varieties because they respond to costly inputs. Farmers unable to afford such inputs suffered disproportionately, often losing their land. Their yields also declined in the absence of such inputs.

Source: Conroy, Murray and Rosset, 1996.

spending and because women often have to take on social roles previously supported by government spending.

Other human development problems arise even where women successfully engage in non-traditional exports—such as horticulture, which employs a large number of rural women. Technological and logistical developments and agricultural trade agreements have made flower exports easier and immensely profitable for transnational corporations. Kenya is the largest supplier of fresh-cut flowers to the UK, while half the flowers sold in the US comes from Colombia, where about 100,000 women work in greenhouses. But these positive employment effects have been counterbalanced by health and environmental costs unrelated to trade but still important from a human development perspective. Many flower plantations use harsh pesticides, lack safety equipment and flout national health and safety regulations, causing a range of illnesses among female workers—from nausea and headaches to asthma and miscarriages (White, 2001). The EU proposal for sustainability impact assessments could help in such situations.

Moreover, case studies suggest that trade liberalization in agricultural economies has significant distributional implications, both across social groups and in gender terms. It can disadvantage women or benefit them less than men even when traditional crop production increases (Cagatay, 2001). In Central America (see box 5.7) and many sub-Saharan African countries trade reform has tended to benefit medium-size and large producers at the expense of smaller ones. Because women—the backbone of agricultural production and food security—are primarily small farmers, this has had negative consequences for their economic welfare and for household food security. Growth in food imports can also result in cheaper goods, displacing local production and threatening the livelihoods of women whose income comes from selling traditional foods. Such developments have negative implications for the health and well-being of women and girls.

Proposals for the future

Agricultural activities are more liberalized in developing than in industrial countries—especially in many of the least developed countries and countries that have implemented structural adjustment programmes mandated by the IMF and World Bank. Thus developing countries believe that it is industrial countries' turn to liberalize in the new round of agricultural negotiations. Many developing countries also believe that the domestic support commitments under the Agreement on Agriculture were designed to reduce excess agricultural production in industrial countries. Developing counties want to increase their agricultural production (for example, by increasing productivity) and food security and work towards their broader development goals.

Two sets of proposals emerge from the discussion in this chapter. One involves the need for increased market access and reduced domestic support and export

subsides in industrial countries, particularly Canada, the EU, Japan and the US. The other relates to the food security of developing countries and their need for greater flexibility in crafting policies for agricultural development. Though both sets of issues are crucial for achieving human development goals in developing countries, the discussion below emphasizes food security and agricultural development policies. This is because much has already been written on market access, domestic support and export subsidies, and in the international community there appears to be broad agreement on at least some of the proposals needed to address these issues—even if the political will to implement such policies is lacking in some industrial countries.

Still, the parameters of this long-standing debate are limited because most discussions on the way forward have focused on the roles of governments, farmers and, to a lesser extent, consumers. By contrast, there is a deafening silence on the role of transnational corporations and the concentration of market power. This silence means that both the academic models used to justify the overall benefits of the Agreement on Agriculture and the rhetoric of different negotiating positions (from both industrial and developing countries) are evading a crucial element of the political economy of agricultural trade. Until this issue is confronted—and it is hard to see how that will happen in the framework of current negotiations on agriculture—it will be difficult to achieve real progress on market access for developing countries in industrial countries or significant reductions in domestic support and export subsidies in the US and EU. Political will in industrial countries is a prerequisite for dealing with this asymmetry.

Market access, domestic support, export subsidies and export dumping

Tariff peaks and escalation. There is a need to reduce tariff peaks and eliminate tariff escalation, particularly for agricultural exports and processed food exports of interest to developing countries. This issue is of crucial importance to many developing countries in the current round of agriculture negotiations. Some developing countries are proposing that industrial countries use the 'Swiss formula', which was used to reduce industrial tariffs during the Tokyo Round and can lead to disproportionately greater cuts on higher tariffs.[14] Other proposals, not necessarily mutually exclusive, include cutting tariffs on all products to a certain level (say, 25 per cent) over a five-year period. For products with especially high tariffs this will first entail lowering the tariff to a certain level (say, 50 per cent), then cutting all tariffs by a certain percentage (say, 50 per cent)—that is, harmonization followed by reduction. Binding deeper reductions on products of export interest to developing countries have been proposed for industrial countries, with maximum tariffs of 12 per cent. Special and differential treatment for developing countries includes lower tariff reductions, longer implementation periods and exemptions for the least developed countries. While there is no agreement on these proposals,

a solution that conclusively deals with tariff peaks and escalation should be agreed at the 2003 WTO ministerial meeting in Cancun, Mexico.

Domestic subsidies. Many developing countries have said that they will offer tariff cuts only after industrial countries have made clear their reductions in the Aggregate Measure of Support and export subsidies. If this approach is agreed, a developing country may be required to reduce its tariffs by a small amount or not at all for products that receive subsidies in industrial countries.

While some industrial countries' non-trade concerns are legitimate, there is a need to eliminate 'blue box' subsidies in particular. Given their nature, these subsidies should have been considered transitional. It would be desirable for them to be eliminated by January 2005, the mandated date for the conclusion of the Doha Round. For that to happen, agreement on this will need to be reached in Geneva and incorporated into the ministerial declaration that emerges from the 2003 WTO meeting in Cancun.

The Aggregate Measure of Support limits allowed under the 'amber box' should apply on a product-specific basis, not just in aggregate. Ideally subsidies allowed under this box should also be phased out, if possible by 2015—the same year targeted by the international community for the achievement of the Millennium Development Goals. In fact, such a commitment should be seen as a concrete target within goal 8 of those goals.

There is also a need to more clearly define, through tighter criteria, what can be allowed as part of the 'green box'. Ideally this should be the only box that industrial countries are allowed to use after 2015, with clear criteria on what it can include. Legitimate non-trade concerns of industrial countries should be dealt with through green box measures, which should be geared towards protecting small farmers. This is not the case for many of the measures currently allowed under the green box, including decoupling measures. In addition to protecting small farmers, some recent reform proposals for the EU Common Agricultural Policy—which seek to shift funds from direct payments to farmers to rural development and environmental programmes—could be accommodated within the green box.

Export subsidies. All export subsidies should also be phased out by 2010. The Doha declaration aims at the eventual elimination of agricultural export subsidies, though no timeframe was agreed. While the EU will probably strongly oppose any timeframe, it is important to get agreement on a reasonable timeframe if the language of the Doha declaration is to have any meaning.

Products on which export subsidies cause the greatest disruption to developing countries' production and trade should be targeted for elimination within a shorter timeframe. Moreover, it is essential that article 10 of the Agreement on Agriculture be effectively implemented to establish disciplines over export credits,

to prevent them from being used to circumvent obligations on export subsides. Food aid should be provided only in the form of grants.

Export dumping. A related but broader issue, countries should commit to reducing and then eliminating export dumping of all agricultural products by 2010. While some argue that dumping can be dealt with through the use of countervailing duties by importing countries, this is not a realistic solution for small, powerless, poor countries. Export dumping issues can, however, be partly dealt with through the establishment of a proper safeguard measure for developing countries (see below).

The most effective way to eliminate export dumping, nevertheless, will be to secure appropriate legislation in the US, EU and other major grain exporters. Such legislation should ensure that export prices capture the full costs of production and transportation, including a reasonable profit. To help implement such legislation, and as a start, the OECD should publish the full costs of production estimates for all its member states and make these available to all importing countries. To the extent that these products benefit from green box subsidies, the prohibition of export dumping could be one of the conditions for extension of the peace clause.

Food security and sustainable agricultural development

All developing countries—but the least developed in particular—need more policy flexibility to ensure food security and protect the employment and livelihoods of their poor and vulnerable populations. Many proposals have been made on these issues by African countries, India and other WTO members. The most comprehensive, from a human development perspective, is the 'development box' (box 5.8).

There should be an agreement on the creation of a development box at the 2003 meeting in Cancun. To give developing countries the development policy flexibility they need to pursue human development goals, the development box should go beyond most proposals to date. Ideally it should be based on a positive rather than a negative list approach and apply only to developing countries (Kwa, 2002). Limiting to just a few the food security crops to be included on a negative list for exclusion from the Agreement on Agriculture would be ineffective from multiple perspectives. For example, while contributing considerably to food security, such an approach is unlikely to enhance agricultural biodiversity and sustainability or boost employment and livelihoods.

Even if a positive-list approach is unattainable, a development box with certain core features should be considered integral to any new agreement on agriculture in Cancun. Such a box should, among other elements, include a proper safeguard measure for developing countries as a WTO rule as well as enhanced tariff rate quotas based on experience to date—drawing on the recent Swiss proposal for such quotas and others that build on it.[15] Development box measures should also allow for the exemption of food security crops from tariff reductions, allow input and investment subsidies aimed at increasing and diversifying agricultural production and

BOX 5.8 THE DEVELOPMENT BOX

Many developing countries have argued that the agriculture sector presents a number of development concerns that reach well beyond food security and that the Agreement on Agriculture should recognize these through the creation of a 'development box'. Key rationales for this proposal include highlighting the inherent market failures in agriculture and emphasizing the need to protect certain widely agreed basic human rights. Both goals necessitate a public policy role in agriculture that should not be constrained except to prevent significant deliberate or inadvertent negative effects on other countries. The proposal is particularly relevant for countries that cannot afford to support their agricultural sectors with direct payments—that is, all developing countries.

Broadly speaking, proponents of the development box advocate provisions aimed at allowing them to adopt policies that ensure higher incomes, reduced vulnerability to price fluctuations and increased agricultural productivity, especially for food staples and poor farmers. Such provisions would give developing countries the flexibility to pursue a wide range of policies aimed at reducing poverty and achieving human development.

More specifically, the instruments within a development box could be targeted at crops, people, countries or all three. Most development box proposals recommend greater flexibility in market access disciplines for food security crops, food-insecure countries and low-income and resource-poor people. These proposals seek to protect and enhance production capacity for staple foods, provide and protect agricultural and rural livelihoods for poor people, protect small farmers and producers from highly subsidized export dumping and increase employment, food security and accessibility for the most vulnerable segments of the population.

The proposal applies only to developing countries, and within such countries focuses on low-income and resource-poor farmers and staple and food security crops—which provide the main source of livelihood for such farmers. If defined as cereal crops, which normally include a country's food staples, increased trade barriers are unlikely to have a major impact on trade between developing countries because cereals account for less than 10 per cent of developing countries' agricultural exports. Likewise, by maintaining such a focus, the proposal concentrates on supporting farmers who generally produce crops for domestic consumption, not export markets.

Source: Dominican Republic, Kenya, Pakistan and Sri Lanka, 2002; Green and Priyadarshi, 2001; Ruffer, Jones and Akroyd, 2002.

exports, and link the phase-out of protectionist barriers in developing countries to the phase-out of domestic support and export subsidies in industrial countries and food dumping by their producers as a result of such subsidies.

A revised Special Safeguard mechanism that is relatively simple, transparent and easy to administer will be of crucial importance and merits special attention. This safeguard should be invoked when import prices fall below an agreed trigger or import volumes rise above an agreed trigger (Ruffer, Jones and Akroyd, 2002). In conjunction with and as a supplement to this, developing countries should be able to raise bound tariffs for food security and other crops crucial to farmer livelihoods and agricultural sustainability if these were set too low (as India recently did with its previously zero bound tariff on rice). They should also be able to reduce tariffs on such crops much more slowly than current rules and timetables allow.

If a positive-list approach for product inclusion is agreed, clear criteria will be needed to ensure that developing countries do not abuse its intent. For example, all products that are significant agricultural exports of a country and that account for a significant share of the world export market (say, 3 per cent) should be included on a country's positive list and be subject to Agreement on Agriculture disciplines. Other clear, enforceable criteria will also need to be developed. These could include subjecting all exports with a positive Aggregate Measure of Support to Agreement on Agriculture disciplines by placing them on a country's positive list.

There are important areas of overlap between proponents of the development box and those from developing countries who emphasize food security as part of stronger, more operational special and differential treatment. But the development box proposal goes much further than seeking to address food security. It aims at giving developing countries the autonomy and flexibility they need to devise agricultural development policies that reduce poverty and promote human development. The development box proposal also targets poor and vulnerable people more clearly than do food security proposals.

Support for the concept of a development box appears mixed. Objections focus on the fact that it deals only with small farmers, not the landless rural poor who in many cases—as in Latin America—make up a significant portion of the population below the poverty line. The notion of an 'employment crop' to provide jobs for rural labourers has been suggested in response to this criticism, but the concept remains ill-defined. However, the Food and Agriculture Organization has done interesting work showing how a healthy farm economy is good for landless labourers. For example, as long as land holdings are not grossly inequitable, prosperous farms generate jobs both on the farm and for services such as construction (FAO, 2001b). This work merits further research.

Critics of the development box also argue that while it will benefit small producers, it will lead to higher prices for poor consumers in developing countries—especially countries with large urban poor populations. Advocates counter argue that revenues from higher tariffs on certain food imports can be used to compensate poor urban consumers in the short term. Furthermore, poor consumers rarely benefit from cheap imports because of market failures and structural impediments—which have led to the well-documented capture of a disproportionate share of lower-priced imports by transnational food conglomerates, traders and middlemen.

This political economy problem will need to be addressed by national governments if consumers are to benefit through lower prices. But as argued earlier, a long-term solution that guarantees low food prices for poor consumers in developing countries will not be found without significant increases in spending on research and development for the production of food staples in developing countries. Such spending—accompanied by technical assistance—needs to be made a priority by both developing and industrial countries.

The development box, especially if made operational through a positive-list approach, appears to have genuine potential for putting human development at the heart of the agriculture negotiating process. If accepted, it will mark a shift in the global trade regime towards a trade and human development regime—and create opportunities for replication in other trade negotiation areas. Thus the development box has value in itself and in symbolic terms, signalling that the trade regime can put human development and the needs of poor people at its core.

Specific instruments to operationalize the development box should emerge from the third phase of current agricultural negotiations, due to conclude in March 2003. These instruments should build on the proposals made in this chapter as well as those made in the Committee on Agriculture by the 'Friends of the Development Box' and in other studies (see Ruffer, Jones and Akroyd, ch. 6).

NOTES

1. Annex V:B provides an exception to the elimination of non-tariffs barriers for primary agricultural products that are dominant staples in the traditional diets of developing countries. Such countries are permitted to retain quantitative restrictions for 10 years subject to increasing minimum access opportunities, at which time any continuation must be negotiated. Only the Republic of Korea, the Philippines (both for rice) and Israel (for cheese and sheep meat) have invoked this provision.

2. Against this flexibility, Jordan's accession to the WTO after 1995 shows the difficulties that new members face in getting product-specific special treatment in Uruguay Round agreements. Jordan was one of the first developing countries to negotiate its accession to the WTO in the post–Uruguay Round period. It appears to have received 'WTO plus' terms in agriculture that have limited its flexibility, because it accepted relatively stringent conditions governing its agricultural trade policy—notably relatively low bound tariff rates. Subsequently, during negotiations in the Committee on Agriculture, Jordan proposed that modifications be made in the Agreement on Agriculture to permit developing countries to effectively address poverty alleviation, rural development, rural employment and desert reclamation. These include the possibility of a flexible tariff rate (on olive oil), measures to support sheep raising in desert areas and use of the Special Safeguard mechanism.

3. The Special Safeguard for agriculture differ from the General Safeguard Provisions covered under article XIX of GATT 1994 and the Agreement on Safeguards. The conditions to be met for agricultural products are less strict than those provided by the Agreement on Safeguards.

4. As cited in Anderson, Hoekman and Strutt (1999), Tangermann (1994) illustrates this by the example of a country with four items subject to tariffs: three sensitive ones with 100 per cent duty rates and one with a 4 per cent duty rate. It is possible to arrive at an unweighted average rate of 36.25 per cent, which would meet the unweighted 36 per cent tariff cut requirement, by eliminating the 4 per cent tariff and reducing the 100 per cent tariffs to 85 per cent—and so maintaining high levels of protection on sensitive products. This approach to implementing Agreement on Agriculture stipulations also results in high tariff dispersion rates.

5. Tariffs peaks in agriculture and food processing normally imply tariffs of 12 per cent or more. Tariff escalation occurs if a tariff increases as a good becomes more processed. For example, low duties on tomatoes, higher duties on tomato paste, and yet higher duties on tomato ketchup.

6. For example, limited capacity is a major reason African, Caribbean and Pacific countries have had very modest export success—despite their relatively free access to EU markets. African countries have especially limited capacity.

7. Bangladesh, Botswana, Brazil, Egypt, Fiji, Guyana, India, Jamaica, Kenya, Morocco, Pakistan, Peru, Senegal, Sri Lanka, Tanzania and Thailand.

8. 'Negative' Aggregate Measure of Support refers to a situation where the administered price of a product in a particular year is lower than its nominally fixed reference price. Some developing countries have suggested that such negative measures of support be deducted from the total Aggregate Measure of Support because they can be considered a tax on farmers—and because the total Aggregate Measure of Support should, by definition, be the sum of all subsidies and taxes.

9. The Aggregate Measure of Support is an index that measures the monetary value of government support to a sector. The Agreement on Agriculture's Aggregate Measure of Support includes direct payments to producers, input subsidies (such as for irrigation water), programmes that distort market prices to consumers (market price supports) and interest subsidies on commodity loan programmes.

10. Article VI of the General Agreement on Tariffs and Trade (1947) has two definitions of export dumping. The one more relevant to many agricultural exports is when there are no 'normal' prices and the export price in another market is less than the cost of producing the product in the country of origin plus a reasonable addition for selling cost and profit. This is referred to as the 'constructed' value of the product.

11. Sen identifies production, trade, labour and transfers (usually from government) as the four sources of food and potential food security. Each of these sources is affected by the Agreement on Agriculture to some degree. For example, spending on agricultural production is affected by the de minimis ceiling, while trade is affected by the tariff reduction stipulations and other aspects of the Agreement on Agriculture.

12. The panel consisted of experts from the Food and Agriculture Organization, International Monetary Fund, International Grain Council, United Nations Conference on Trade and Development and World Bank.

13. Industrial agriculture, in contrast to subsistence agriculture, is characterized by intensive use of high-cost or scarce inputs such as chemical fertilizers, pesticides, water and capital equipment, and generally relies on mechanization.

14. The Swiss formula is: $T1 = (cT0)/c + T0$, where $T0$ is the initial tariff, $T1$ the new tariff after the cut and c the reduction coefficient that determines the depth of the cut. The smaller the coefficient, the greater is the resulting tariff cut.

15. Switzerland recently proposed that a certain percentage of new tariff rate quotas be allocated to non-traditional exports from developing countries—an interesting option for developing countries with limited supply capacity (see www.blw.admin.ch/agrarbericht2/e/international/entwicklung.htm).

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