

What are effective instruments for using agriculture for development?

chapter 4

Reforming trade, price, and subsidy policies

Agriculture is a cause of contention in international trade negotiations as well as in domestic debate on price and subsidy policies. It is often the cause of delays to multilateral trade negotiations, as in the Uruguay and Doha Rounds; is a source of political tension, especially in transforming countries; and is a challenging area for policy dialogue with development partners, particularly in the poorest countries. Reforms are usually politically sensitive with strong vested interests and, hence, are often difficult to achieve. Yet significant gains can be made from further agricultural trade, price, and subsidy policy reforms. Such gains will not come easily, however, for reforms require addressing the political economy of difficult policy choices. There will be both gainers and losers from reforms.

Agricultural policies vary widely across countries. They have historically tended to shift from net taxation to subsidies as a country's per capita income rises (chapter 1).¹ Low-income countries tend to impose relatively high taxes on farmers in the export sector as an important source of fiscal revenue, while developed countries tend to heavily subsidize farmers. These differences often create a policy bias against the poor in both domestic and international markets.

The economic and social costs of today's trade, price, and subsidy policies in world agriculture are large. They depress international commodity prices by about 5 percent on average (much more for some commodities) and suppress agricultural output growth in developing countries. They consume a large share of the government budget and distract from growth-enhancing investments. Although reduced over the last two decades, especially in developing

countries, these economic and social costs remain significant and perpetuate global income disparities. Correcting those policy and investment failures can accelerate growth and reduce poverty.

This chapter reviews the recent policy shifts across developed and developing countries; the potential gains from further reforms; who gains and loses from reform; and the pace, sequencing, and complementary support needed in advancing these reforms to enhance growth and reduce poverty. The political economy framework from chapter 1 helps in understanding the determinants of policy choices for selected cases—and the ways to further improve trade and price incentives and the efficiency of public spending.

Agricultural protection and subsidies in developed countries

Much attention has been given to reducing the negative impacts of developed country policies on developing countries—particularly through efforts to open markets and to remove developed-country subsidy policies that have induced production and depressed world prices (box 4.1). Rising agricultural protection in developed countries and concerns about its impact on poorer developing countries spurred international efforts in the 1980s to reduce distorted prices in world markets. At the start of the Uruguay Round of trade negotiations in 1986, some agricultural exporting countries formed the Cairns Group and ensured that members of the General Agreement on Tariffs and Trade put agricultural trade and subsidy reform high on the Uruguay Round agenda. Developing countries also formed the G-20 group at the time of the Cancun

Ministerial conference in the Doha Round in 2003 to secure reductions in developed-country protection.

Reform progress is slow, with little change in overall support

Member countries of the Organisation for Economic Co-operation and Development (OECD) are reforming their agricultural policies, but progress is slow. The average support to agricultural producers fell from 37 percent of the gross value of farm receipts in 1986–88 (the beginning of the Uruguay Round) to 30 percent in 2003–05. This estimate, referred to as the producer support estimate (PSE), measures the annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farmgate level as a share of the gross value of farm receipts. It arises from policy measures that support agriculture, regardless of their nature, objectives, or impacts on farm production or income.² While the 7-percentage-point decline in support is progress, the amount of support increased over the same period from \$242 billion a year to \$273 billion.

More than 90 percent of the dollar value of agricultural support in OECD countries is provided by the European Union (which alone provides about half); Japan; the United States; and the Republic of Korea. In all four, the PSE remains high (figure 4.1).³ In contrast, two OECD countries—Australia and New Zealand—provide little support to their farmers.

OECD countries have increased preferential access to their markets for some developing countries. For example, in 2000, the United States signed the African Growth and Opportunity Act, which offers preferential access to Africa’s products in U.S. markets. The EU continues to provide extensive nonreciprocal preferential market access to countries in Sub-Saharan Africa, the Caribbean, and the Pacific under the Cotonou Agreement. In 2001 the EU also provided duty-free and quota-free access to its markets to UN-designated Least Developed Countries for “Everything But Arms,” although it excluded services and delayed opening sensitive markets for bananas, rice, and sugar.

BOX 4.1 *Types of instruments that distort trade*

Three main types of instruments distort trade: market access, export subsidies, and domestic support.

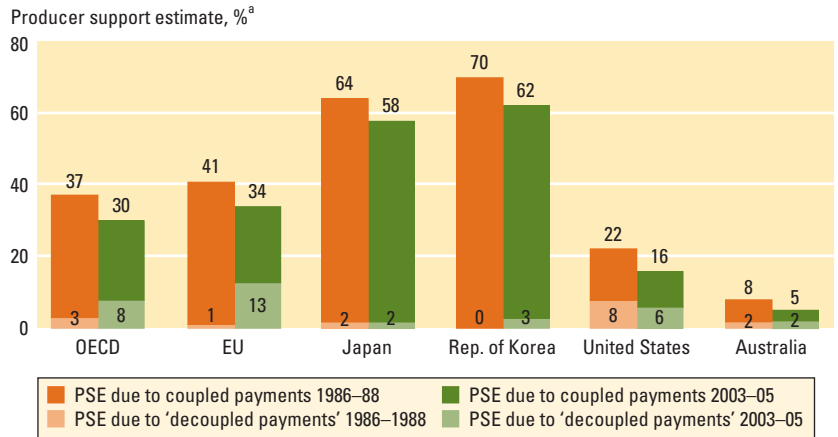
Market access: These include import tariffs and quotas that protect local producers from competing imports. Protection induces local production to be higher than would be the case at market prices, at the expense of international producers and exporters.

Export subsidies: These include government payments that cover some

of the costs of exporters such as marketing expenses, special domestic transport charges, and payments to domestic exporters to make sourcing products from domestic producers competitive.

Domestic support: These include direct support to farmers linked to the type, price, and volume of production. Depending on the level of support, local production is usually higher and competing imports lower than in the absence of subsidies.

Figure 4.1 Progress has been slow in reducing overall support to agricultural producers in the OECD, but there has been some move to less-distorting “decoupled” payments



Source: OECD 2006b.

Note: Coupled payments include market price supports and payments tied to output level and input use. OECD countries include EU, Australia, Canada, Iceland, Japan, Republic of Korea, Mexico, New Zealand, Norway, Switzerland, Turkey, and the United States.

a. Transfers to agricultural producers as a share of the gross value of farm receipts.

Price support to farmers in OECD countries creates incentives to produce more. The recent shift to separate or decouple support from the type, volume, and price of products is an effort to reduce the trade-distorting effects on current or future production while maintaining support to farmers. Twenty-eight percent of the PSE in 2003–05 was decoupled from production and input use, up from 9 percent in 1986–88 (figure 4.1).

Decoupled payments are less distorting than output-linked forms of support such as tariff protection, but they can still influence production. They can reduce farmers’ aversion to risk (wealth effect) and reduce

the variability in farm income (insurance effect). Banks often make loans to farmers that they would not make to other borrowers, keeping farmers in agriculture.⁴

Most programs of decoupled payments have no time limit, as in the EU and Turkey. The United States had a program with a time limit in the 1996 Farm Bill, but it was not enforced. Mexico's decoupled program initially had a time limit; the program was supposed to expire when the North American Free Trade Agreement phase-in is completed in 2008, but the government has already announced that the program will be retained in some form. Unless these programs have time limits with credible government commitments to stick to them, decoupled payments risk becoming more distorting and costly than commonly assumed. In addition, continuing output-linked programs along side decoupled support can significantly dampen the less-distorting effects of decoupled programs.

Progress on decoupling has varied significantly by commodity, with most progress on grains—although recent initiatives to expand the use of biofuels in OECD countries may indirectly reverse some of this progress. Needed now is a rapid shift to less-distorting decoupled support for export products important to developing countries, particularly cotton. There have been some recent changes to rice, sugar, and cotton policies in Japan, the EU, and the United States, respectively, all at an early stage of implementation.

Political economy factors matter for further reform

Political economy factors in each country have determined the pace and extent of reforms. U.S. cotton policies, EU sugar policies, and Japan rice policies indicate that the impact of the World Trade Organization (WTO) in inducing reform is real and that media pressure can complement it (box 4.2). The cases show that reforms are not easy and often require bargained compromises and compensation schemes for the losers to get agreement on further reducing high levels of agricultural protection (as in the Japanese rice policy reforms and the EU sugar policy reforms).

Agricultural taxation in developing countries

Policies in developing countries have also blunted the incentives for agricultural producers. Macroeconomic policies historically taxed agriculture more than agricultural policies did, but both were important in poorer countries. The indirect tax on agriculture, through overvalued currencies and industrial protection, was nearly three times the direct tax on the sector at the time of the last *World Development Report* on agriculture (1982). In a study that included 16 of today's developing countries from the 1960s to mid-1980s, average direct taxation was estimated at 12 percent of agricultural producer prices and indirect taxes at 24 percent. High taxation of agriculture was associated with low growth in agriculture—and slower growth in the economy.⁵ The poorest developing countries taxed agriculture the most, and reinvestments of tax revenues in agriculture were low and inefficient (chapter 1).

With reforms in the 1980s and 1990s to restore macroeconomic balance, improve resource allocation, and regain growth in many of the poorest countries, both direct and indirect taxes were reduced. The reform of overvalued currencies, which taxed agricultural exports (usually exported at the official rate) and subsidized food imports, is reflected in the huge reduction in the parallel market premiums for foreign currency in developing countries. For 59 developing countries, the trade-weighted average premium fell from more than 140 percent in the 1960s to approximately 80 percent in the 1970s and 1980s and to just 9 percent in the early 1990s, with wide variation across countries.⁶

Agriculture-based countries are taxing agriculture less

Reforms in agriculture-based countries, particularly in Sub-Saharan Africa, more than halved the average net taxation of agriculture from 28 percent to 10 percent between 1980–84 and 2000–04 (simple average across countries included in figure 4.2). The approach used to measure the change in net taxation in developing countries is through calculation of a nominal

BOX 4.2 *The political economy of agricultural reforms in developed countries*

Agricultural subsidies and tariffs on rice and sugar, aggregated across all countries, are estimated to account for 20 percent and 18 percent, respectively, of the global cost of all agricultural trade policies—the highest of all commodities. Although the equivalent global cost of cotton subsidies and tariffs is much smaller, the absolute cost to developing countries is large, an estimated \$283 million a year. For Sub-Saharan Africa, the developed-country cotton subsidies and tariffs account for about 20 percent of the total cost of trade policies on all merchandise goods.

Japanese rice policy reform: bargained compromise to agree on decoupled support

Japan protects rice producers, a traditional source of political support, through a 778 percent *ad valorem* tariff equivalent on rice imports. In 2007 Japan introduced a less-distorting direct payment to farmers linked to farm size, not production. The payment is expected to be bargained against a decline in tariff levels for rice—making payments to farms larger than a certain size to target “principal” rather than “part-time” farmers. The new scheme is viewed as a less-distorting alternative to border protection and as a mechanism to induce larger-scale production.

Why did politicians agree to the proposed scheme despite the apparent risk of undermining their political support from rural areas? Three factors. One is the ever-strengthening voices from nonfarm sections of the economy. A second is media pressure: fearing Japan’s increasing isolation in the global economic community for its rice policies. Third is the view that agriculture should be part of the broader economic reforms.

The system of protection of agriculture has been kept in place by a strong pro-agricultural coalition of the Ministry of Agriculture, Forestry, and Fisheries; the ruling Liberal Democratic Party; and the Japan Agricultural Cooperatives, which implements the farm subsidies programs. But the Ministry of Agriculture, Forestry, and Fisheries has gradually shifted to more market-oriented policies. The Liberal Democratic Party has shifted its balance of interest toward urban areas because of growing support from cities in recent elections, an indication that nonagricultural groups are gaining political capital in this policy arena.

While reform seems inevitable, opposition by Japan Agricultural Cooperatives led to a compromise in the coverage of the direct-payment scheme, expanded to include direct payments to small part-time farmers if they organized into a collective farming unit. Although viewed as weakening the efforts at structural change, it seemed necessary to

get agreement to a reform program while not undermining, but perhaps slowing, the eventual shift to larger-scale production. Larger-scale farmers are already exiting the Japan Agricultural Cooperatives marketing system, exits expected to accelerate under the direct-payments program, reducing the political power of Japan Agricultural Cooperatives and its resistance to reform.

EU sugar policy reform: compensation and restructuring to complement reform
EU domestic sugar prices—supported by high import tariffs—are three times higher than world market levels, increasing incentives to produce sugar in the EU and depressing the world market price of sugar at the expense of many developing-country exporters. However, some African, Caribbean, and Pacific countries benefit from these higher prices under the Everything But Arms trade agreements.

The European Union agreed to reform its sugar regime in February 2006; reforms began in July 2006 and extend for four years. If fully implemented, the reforms would radically change the sugar regime, in place for almost 40 years. For years, the policy had encountered discontent from the food processing industry, paying three times the world price for sugar. But two main factors led to the initiation of reforms. First, the EU’s sugar export subsidy system was ruled noncompliant with agreed commitments under the WTO. Second, the EU’s Everything But Arms initiative was introduced in 2001 to open the EU sugar market to duty-free and quota-free imports from the world’s 50 Least Developed Countries from 2009 onward. This was expected to lead to a surge in imports and the destabilization of the EU sugar regime unless the sugar price was reduced. Adding to these determinant factors was the campaign of an international nongovernmental organization coalition that emphasized the negative effects of the EU sugar policy for developing countries. The reform became imperative.

While the political equilibrium turned against the sugar producers, measures were put in place to address the expected loss of revenues that the reform will induce and to counter the producers’ opposition. Compensation and a restructuring fund (financed partly by producers) to encourage uncompetitive producers to leave the industry were agreed to in February 2006. EU farmers are expected to receive compensation for an average of 62 percent of the price cut phased over four years.

The four-year restructuring fund has three main objectives: to encourage less-competitive producers to leave the industry, to cope with the social and environmental impacts of factory closures, and to help the most affected regions develop new businesses in line with

EU structural and rural development funds. Africa, Caribbean, and Pacific countries that received higher-than-world-market prices for their quota of sugar produced for sale in the EU market were eligible for an assistance plan worth €40 million for 2006.

U.S. cotton policy reform: WTO and local media pressure to offset industry lobby power

The United States accounts for 40 percent of world cotton exports and 20 percent of world cotton production. Subsidies have been equivalent in value to about two-thirds of the market value of production over the 2000–05 period. The additional U.S. production prompted by these subsidies is estimated to reduce the world cotton price by 10 to 15 percent, at significant cost to developing countries.

U.S. cotton policy is heavily influenced by a strong interest group, the Cotton Council of America (representing the 24,721 cotton growers, according to the census in 2002, as well as ginners, exporters, bankers, and suppliers). The council is one of the most powerful U.S. commodity lobbies, winning disproportionately higher support relative to other sectors, particularly since the enactment of the 1996 Farm Bill (an average equivalent of \$120,000 a year per farmer).

Four West African cotton-producing countries (Benin, Burkina Faso, Chad, and Mali) submitted a joint proposal to the WTO in May 2003, demanding removal of support to the cotton sector by the United States, China, and the EU and compensation for damages until full removal of support. Brazil initiated a comprehensive case against the United States for noncompliance with its WTO obligation on cotton subsidies. In March 2005, the WTO Dispute Settlement Body instructed the United States to bring the offending cotton subsidy measures into compliance with its WTO obligations. The United States made adjustments in response to the WTO decision, but in December 2006 Brazil formally expressed its dissatisfaction with the extent of U.S. policy changes and asked the WTO panel to find the United States “out of compliance” with the original ruling. The compliance phase of the case is now proceeding. While the reduction in U.S. cotton subsidies was a response to the legal case at the WTO, the U.S. media and reform-minded groups also pressured the U.S. Congress to reduce support.

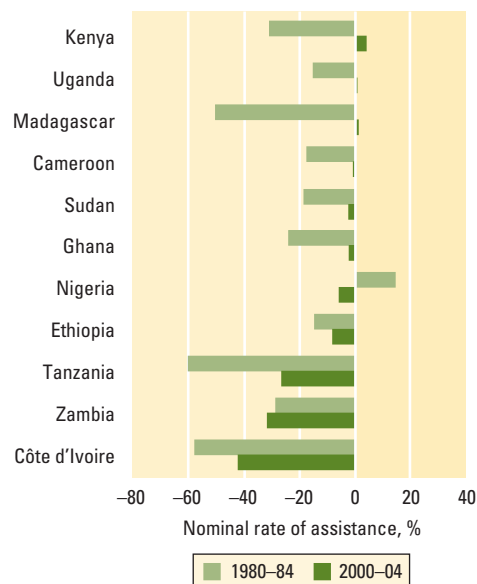
Sources: Anderson, Martin, and van der Mensbrugghe 2006a; Anderson and Valenzuela forthcoming; Masayoshi Honma, Yujiro Hayami, Dan Sumner, Don Mitchell, and John Baffes, all personal communication 2007.

rate of assistance to farmers (box 4.3). Nine of 11 countries in a recent study had lower net taxation in the second period (figure 4.2). Only Nigeria and Zambia had higher net taxation between the two periods, with the highest net taxation in 2000–04 in Côte d'Ivoire (about a –40 percent nominal rate of assistance).

Despite macroeconomic adjustment, real domestic prices for agricultural exports across these countries did not change much on average over the 1980s as the macroeconomic improvements barely offset the declines in world commodity prices. The situation changed during the 1990s—more favorable world commodity prices, continued macroeconomic reforms, and agricultural sector reforms led to larger increases in real domestic prices of agricultural exports.⁷ The stronger price incentives explain part of the higher agricultural growth in many of the agriculture-based countries since the mid-1990s (chapter 1).

The aggregate nominal rates of assistance mask significant differences in taxation and protection between agricultural imports and exports and among products. An average nominal rate of assistance close to zero at the country level simply indicates no net taxation, but it could be the result of large import tariffs offsetting large export taxes. On average between 1980–84 and 2000–04, agriculture-based countries lowered protection of agricultural importables, from a 14 percent tariff equivalent to 10 percent, and there has been a significant reduction in taxation of exportables, from 46 percent to 19 percent (figure 4.3). Most of the

Figure 4.2 For agriculture-based countries, net agricultural taxation fell in 9 of 11 countries



Source: Anderson (Forthcoming).

decline in taxation is the result of improved macroeconomic policies.

For the agriculture-based countries, tobacco, groundnuts, and cocoa were still heavily taxed over 2000–04. The net taxation of coffee declined from 53 percent to 7 percent, and for cotton it declined from 32 percent to 15 percent over the two periods. Sugar shifted from being heavily taxed (nominal rate of assistance of –36 percent in 1980–84) to being heavily protected (76 percent in 2000–04) (table 4.1).

Transforming and urbanized countries are protecting agriculture more

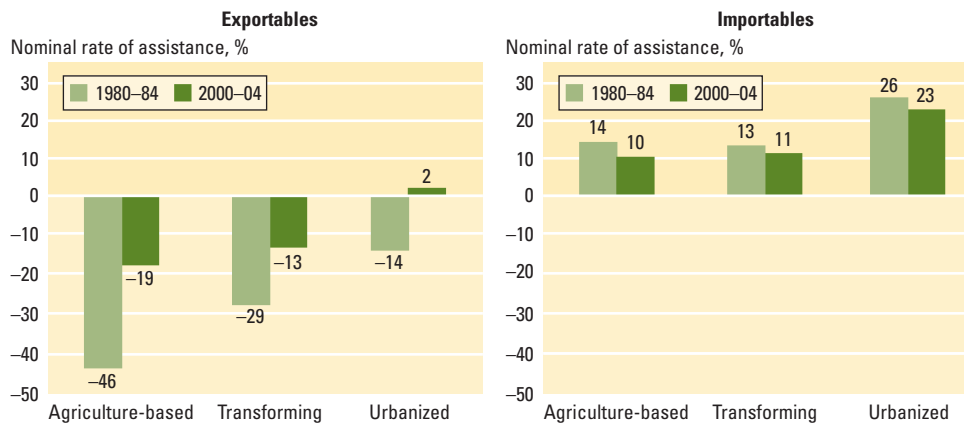
Net taxation in transforming countries declined on average from 15 percent to 4 percent, but with significant variations across countries (simple average across countries included in figure 4.4). Some countries shifted to protect the sector more (Indonesia, India, Malaysia, and Thailand), while others continued to tax it, although at lower levels than in the 1980s (as in Egypt and Senegal) (figure 4.4). Zimbabwe is the only country of this group that had a higher net tax on the sector, mainly because of a highly overvalued currency. There has also been a significant shift in the relative rate of assis-

BOX 4.3 *Nominal rates of assistance*

The nominal rate of assistance to farmers is defined as the price of their product in the domestic market (plus any direct output subsidy) less its price at the border, expressed as a percentage of the border price (adjusting for transport costs, quality differences, and so forth.). The nominal rate measures differences in output prices, but there may also be distortions on the input side. To capture those distortions in countries where they are important, the nominal rate is adjusted (expressed as output price equivalent) to account for direct

input subsidies and differences between the international prices of inputs and the prices that farmers pay for these inputs. If a country distorts its market for foreign currency, efforts are made to account for the difference between the exchange rate used by the importers (assumed to be the parallel exchange rate) and the exporters (a weighted average of the parallel and official exchange rates) and an estimated equilibrium exchange rate.

Source: Anderson (Forthcoming).

Figure 4.3 Developing countries are taxing exportables less

Source: Anderson (Forthcoming).

Note: The countries used for each category are shown in figures 4.2, 4.4, and 4.5, respectively. The aggregates are simple unweighted averages. Value-weighted averages show a similar pattern, although the NRA for exportables in transforming countries in 2000-04 was close to zero, given the dominance of China in the weights. Value-weighting also reduced the NRAs for importables in urbanized countries over the two periods.

tance to agriculture versus nonagriculture in some countries, with a remaining challenge to keep sectoral biases low (box 4.4).

There are also differences across agricultural imports and exports. On average between 1980-84 and 2000-04, transforming countries slightly reduced protection of agricultural importables from a 13 percent tariff equivalent to 11 percent, and reduced the taxation of exportables from 29 percent to 13 percent (figure 4.3).

In urbanized countries, the average net taxation shifted from marginally negative in 1980-84 to a net protection rate of 9 percent in 2000-04 (simple average across countries included in figure 4.5). The net taxation estimate for Latin American countries, particularly in the earlier period, may

underestimate actual taxation as currency overvaluations were not included in the estimates.⁸ (The official exchange rate was used for both time periods.) Six of seven countries analyzed (Argentina, Chile, Colombia, the Dominican Republic, Ecuador, and the Philippines) had higher protection or lower taxation in 2000-04 than in 1980-84 (figure 4.5). Rice and sugar are the most-highly-protected products in the urbanized countries (table 4.1). Between 1980-84 and 2000-04, urbanized countries slightly lowered their level of protection of agricultural importables from an average tariff equivalent of 26 percent to 23 percent, and shifted from a tax on exportables of 14 percent to a subsidy equivalent of 2 percent (figure 4.3).

Table 4.1 Nominal rates of assistance by commodity in developing countries (percent)

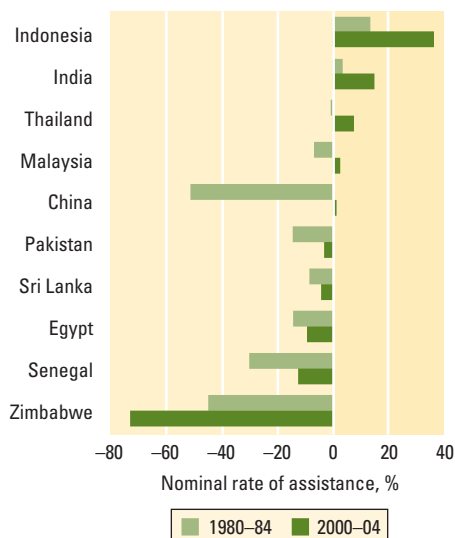
Product	Agriculture-based		Transforming		Urbanized	
	1980-84	2000-04	1980-84	2000-04	1980-84	2000-04
Sugar	-36	76	33	35	-11	52
Rice	-4	5	-12	4	-4	44
Wheat	-12	-3	-4	8	8	-8
Coffee	-53	-7	—	—	-38	4
Maize	-11	-7	-23	8	-14	-1
Cotton	-32	-15	-20	-2	—	—
Cocoa	-51	-36	—	—	—	—
Groundnuts	-19	-38	9	9	—	—
Tobacco	-49	-50	—	—	—	—

Source: Anderson (Forthcoming).

Note: The nominal rate of assistance is weighted by the value of production across countries in each of the three country categories, and estimates are included only if data were available for three or more countries.

— = not available.

Figure 4.4 For transforming countries, 9 of 10 either increased protection or reduced taxation



Source: Anderson (Forthcoming).

Urbanized countries in Eastern and Central Europe have on average increased agricultural protection.⁹ (Comparative statistics are not included in the figures here because the earliest data available are from 1992.)

Net protection has on average increased from 4 percent in 1992/93 to 31 percent in 2002/03 (simple average across countries).¹⁰ There are large differences across countries. For example, Estonia, Latvia, and Lithuania imposed about a 30 percent tax equivalent on the sector in 1992/93, while Slovenia protected the sector. Between 1992/93 and 2002/03, protection on agricultural imports increased on average from a 13 percent to a 38 percent tariff equivalent. Exports were taxed at 2 percent on average in 1992/93, but in 2002/03 they were protected with an average tariff equivalent of 24 percent. The increase in protection is in part a result of EU accession by many of these countries over the period analyzed, resulting in a shift to the higher protection levels of the EU.

Still space for further efficiency gains

While there is less domestic price and trade policy exploitation of farmers in developing countries now than in the 1980s, it has not disappeared. Net taxation of agriculture is low in all but a few countries. But disaggregating net taxation by exportable and import-competing products shows

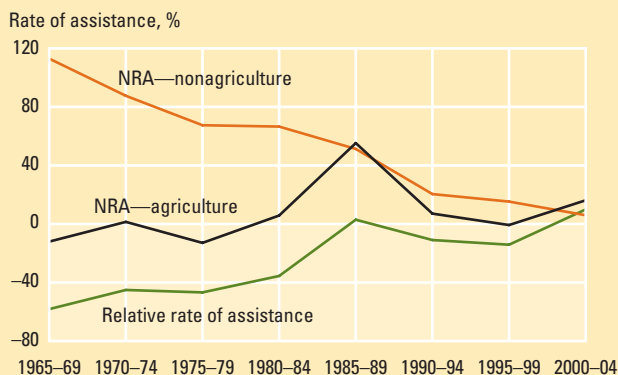
BOX 4.4 Significant progress in reducing the antiagricultural bias in China and India

As developing countries become richer, they generally protect agriculture more. Both China and India have reduced their antiagricultural bias substantially over the past three decades, not only directly but also indirectly via cuts to manufacturing protection (figures below). When compared with the more-advanced econ-

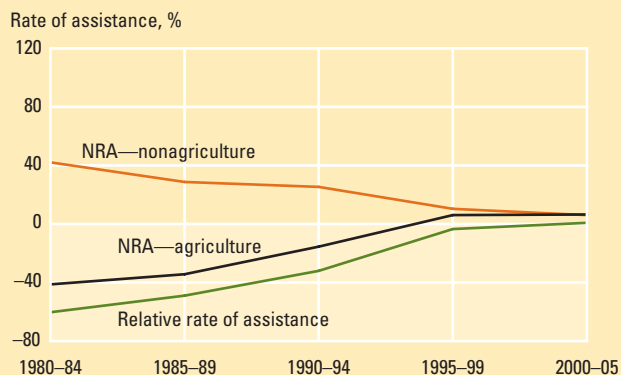
omies of Northeast Asia when they had similar per capita incomes, the trends are strikingly similar. China has reduced its antiagricultural bias at a later stage of economic development than India, but the assistance to agriculture relative to nonagriculture (measured by a relative rate of assistance [RRA] index) has been trend-

ing upward in both countries. China bound its agricultural tariffs at relatively low levels when it joined the WTO in 2001. The challenge now is to keep sectoral biases low and not follow the trend to heavily protect agriculture that other countries followed when they were at similar levels of development.

India—assistance to tradables, 1965–2004



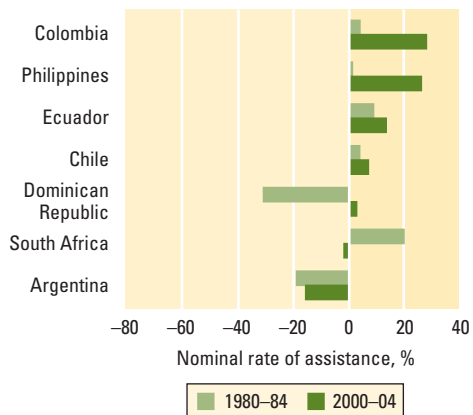
China—assistance to tradables, 1980–2005



Source: Anderson (Forthcoming).

Note: The relative rate of assistance to agriculture is $100 * [(100 + NRA_{ag}) / (100 + NRA_{nonag}) - 1]$, where NRA_{ag} is the nominal rate of assistance to producers of tradable agricultural goods and NRA_{nonag} is the nominal rate of assistance to nonagricultural tradables (mainly mining and manufacturing). The index is bound from below at -100 and is zero when the agricultural and nonagricultural tradables sectors have identical nominal rates of assistance.

Figure 4.5 For urbanized countries, 6 of 7 either increased protection or reduced taxation



Source: Anderson (Forthcoming).

that exports are still heavily taxed in many countries, while some imports are heavily protected. This suggests room for further welfare gains. Further reforms should be designed in the context of a country's level of development. Many developing countries where agriculture is a large share of gross domestic product (GDP) will need to continue to tax agriculture (although not disproportionately) to provide a surplus for broader development programs (see transitional support section).

Political economy factors matter for further reform

Agricultural reforms in many of these countries, particularly the agriculture-based ones, came after the macroeconomic reforms of the 1980s. They were heavily supported by external donors through policy advice and conditional lending. Other important elements of the reforms, reflecting the political economy in countries (box 4.5), include leadership and exploiting windows of opportunity (as in Uganda), tying the fortunes of local leaders to the success of the local economy, building on local support, using WTO accession (as in China), and bargained complementary policies to support free trade (as in Mexico).

Reforms are not easy, because there will be both gainers and losers. Reducing heavy taxation and protectionist biases in developing countries requires understanding the political economy aspects of reform.

The power of outside actors is real, as demonstrated by the impact of WTO accession on protection in transforming and urbanized countries and by the impact of foreign assistance on taxation in agriculture-based countries. However, lasting change occurs only with a strong domestic constituency. Strengthening local constituencies to build coalitions for remaining policy reforms can help—particularly as political systems become more open and competitive.

Simulated gains from trade liberalization

Agricultural policy reform in both developed and developing countries offer significant potential welfare gains, including from trade reforms. The magnitude of the costs of current trade policies and corresponding potential gains from further reforms have been quantified through simulations of global computable general equilibrium models. These models are based on a simplified but consistent representation of production, income, and demand in each country or group of countries and of international markets. While the models require strong assumptions, they remain a powerful tool for analysis of global trade scenarios (box 4.6).

The costs to developing countries of current trade policies are substantial

The global welfare costs of current trade policies fall on both developed and developing countries. Recent estimates show that the global costs of trade tariffs and subsidies would reach about \$100 billion to \$300 billion a year by 2015.¹¹ About two-thirds of the costs are estimated to come from agricultural tariffs and subsidies (the remainder from tariffs and subsidies in other sectors), much higher than agriculture and processed food's 6 percent share of global GDP and 9 percent share of international trade. While these costs are a modest share of global GDP for developing countries, they are substantial relative to current aid flows for agricultural development. Developed-country agricultural policies cost developing countries about \$17 billion per year—a cost equivalent to about five times the current levels of overseas development assistance to agriculture.¹²

BOX 4.5 *The political economy of agricultural reforms in developing countries*

Three examples, one from each country category, illustrate the political economy of reform in developing countries. In Uganda (agriculture-based) and China (transforming), net taxation of agriculture declined significantly between 1980–84 and 2000–04, while in Mexico (urbanized) there was a shift to protection over the same period.

Uganda: leadership and a window of opportunity

Uganda's agricultural reforms disbanded the Coffee Marketing Board and the Lint Marketing Board monopolies in 1991 and the Produce Marketing Board in 1993—all had heavily taxed agriculture. Cross-district product movement restrictions were also removed. The reforms significantly increased the share of the border price received by farmers and contributed to the large 1990s decline in the percentage of people below the national poverty line.

The reforms followed a broader set of macroeconomic reforms by the National Resistance Movement government, which came to power in 1986. The macroeconomic reforms (by reducing the overvalued currency) had a greater impact on agricultural export prices than the agricultural reforms, although both were significant. Following the armed struggle to power, popular legitimacy formed the bedrock of the regime, enabling the president to pursue difficult and potentially unpopular reforms, including those in agriculture. Groups with vested interests in the marketing boards lost their political weight in the regime change.

China: tying the success of local leaders to the success of the local economy

China launched a bold but gradual set of reforms in 1978, first raising prices for agricultural commodities; then decollectivizing agricultural production, making the farm household the residual claimant; and finally beginning to slowly but steadily dismantle the state-run procurement and input supply systems. In response, the rural economy took off. Agriculture boomed. Productivity nearly doubled. The number of rural poor fell from

more than 300 million to fewer than 50 million.

Why was China able to make these tough decisions when leaders in many other nations falter?

Much of the pressure for reform came from the failed policies and poor performance of agriculture. China's leaders were committed to becoming a secure and independent country. There was also an imperative to worry about equity and provide citizens with a minimum standard of living. Central planning was not proving effective.

The decentralization reforms in China tied the fortunes of local leaders significantly to the success of the local economy. Hence, policy initiatives that tied local revenues, local investment spending, and cadre salaries to the increases in agricultural output and the transformation of the economy toward rural industrialization had local support. That the reforms were introduced in a gradual process of local experimentation and learning reduced the political risks associated with the reform. Moreover, the grassroots pressure built in the process helped the reformers in the Chinese government win the battle with conservative reform critics.

Mexico: delicate balance between complementary programs to facilitate agricultural policy reform and protection traps

During the 1990s, following the North American Free Trade Agreement, which established the (gradual) elimination of tariff and nontariff barriers to agricultural imports by 2008, the Mexican government implemented wide-ranging agricultural market-oriented policy reforms. The reforms were designed in ways that avoided major political opposition from domestic agricultural producers with significant political power.

The power of farmer organizations in Mexico was evident in 2002 with a horseback incursion into Mexico's congressional building as a way to influence policy. The message, reminiscent of the Mexican Revolution of 1910, paid off with a negotiated Acuerdo

Nacional para el Campo (National Agreement for the Countryside), greatly increasing public resources funneled to rural areas.

The 1990s reforms eliminated state trading enterprises in agricultural products and support prices. In exchange, they provided commercial producers with brokerage services and market information for price-risk management, and substituted support prices with compensatory payments based on target incomes. The government complemented market support with decoupled, per-hectare payments to producers of basic grains and oilseeds, under a new program called PROCAMPO. The government strengthened land property rights in rural areas. Major grants and subsidized credit-based programs assisted the agricultural sector's transition toward greater efficiency and global competitiveness, through the Alianza Contigo (Alliance with You). In 2004 roughly 80 percent of the Ministry of Agriculture's \$3.7 billion budget was devoted to marketing support, PROCAMPO, and Alianza Contigo, roughly a third of Mexico's public spending on rural development.

The reforms have not eliminated distortions in the allocation of production factors. Market interventions under the new policy regime, while greatly increasing the role of the private sector, have perpetuated or even exacerbated such distortions, hampering the adjustment toward more efficient use of private and public resources. Although interventions were initially established as temporary measures to ease adjustment to a market-based food sector, the economic interests created by these interventions and the export subsidies in developed countries have made it politically infeasible for Mexican policy makers to justify an exit strategy.

Sources: Avalos-Sartorio 2006; Huang, Rozelle, and Rosegrant 1999; Lin 1992; McMillan, Waley, and Zhu 1989; Opolot and Kuteesa 2006; Qian and Weingast 1996; Robinson 2005; Rosenzweig 2003; Rozelle 1996; Swinnen and Rozelle 2006; World Bank 2002a; Yang 1996; Yunez-Naude and Barceinas Paredes 2004; Zahinsier 2004.

Developing countries are estimated to share 30 percent of the welfare costs of current trade policies, whether from agricultural policies or from policies in the other sectors (table 4.2). These lower absolute costs on developing countries translate into a higher percentage of income because of their smaller economies. As a group, the estimated cost by 2015 is 0.8 percent of real GDP—but for some countries it is estimated to be much higher: 5.2 percent for

Vietnam and 3.2 percent for Thailand. For agricultural and nonagricultural liberalization alike, half of the costs to developing countries are estimated to come from policies in developed countries, the other half from policies in developing countries as a group (table 4.2).

More than 90 percent of the global costs are estimated to come from market access restrictions through tariffs rather than from export subsidies or domestic support.

However, their relative importance varies significantly by product.¹³ For example, the reverse is true for cotton, where 89 percent of the costs are expected to come from export subsidies and domestic support programs and 11 percent from tariffs.¹⁴

Trade reforms offer significant scope to reduce the global costs of current policies through raising international agricultural prices, which is expected to increase developing-country agricultural trade shares and agricultural output growth rates in the aggregate. However, not all developing countries will gain.

Large price increases expected for some commodities from trade reforms: a gain for exporters, a loss for importers

According to the 2006 World Bank study, full trade liberalization is estimated to increase international commodity prices on average by 5.5 percent for primary agricultural products and 1.3 percent for processed foods.¹⁵ Developing countries are estimated to gain 9 percentage points in their share of global agricultural exports—increasing from 54 percent to 65 percent.

But these aggregate results hide big differences across commodities and, therefore, countries. The largest estimated price increases are for cotton and oilseeds (figure 4.6), with significant estimated trade share gains to developing countries exporting these products (figure 4.7). Liberalization of cotton and oilseeds is estimated to induce a shift of world production to the developing countries, with an even-greater shift in export shares. Developing countries' share of exports is estimated to increase from 49 percent to 83 percent for cotton, and from 55 percent to 82 percent for oilseeds. The direction of change in international prices is unambiguous, but the magnitude of the price changes differs across studies. For example, a review of 11 studies estimating the changes to international cotton prices from full trade liberalization suggests an average price increase of 10 percent¹⁶ (lower than the 21 percent estimated in the 2006 World Bank study), and estimates of cereal price increases range from 4 to 8 percent.¹⁷

BOX 4.6 *Simulating the effects of trade liberalization with global models*

The general equilibrium models used by different studies to analyze global trade scenarios are conceptually similar: disaggregating the world into a number of countries or groups of countries, modeling in each case supply and demand for a large number of commodities, deriving import demand and export supply, and solving for the world equilibrium prices that clear the international market. The World Bank LINKAGE model, for example, comprises 27 regions or countries, with a focus on isolating the largest commodity exporters and importers, and 25 sectors, of which 13 are agriculture or food. One of the great strengths of general equilibrium models is that they impose consistency: all exports are imported by another country, total employment never exceeds labor supply, and all consumption is covered by production or imports. However, they must rely on strong assumptions—particularly on the adjustments to changes in trade policies as captured by key supply and demand elasticities, for which empirical validation is often inadequate. Key features of the models are the degree of tradability of commodities in each country, which determines the passthrough of international prices to domestic prices; the supply response to price changes, which depends on the availability of resources in the country and

flexibility in resource reallocation across sectors of production; and the characterization of the competitive market structure. Particular attention is given to modeling sources of price distortion, including bilateral tariffs and subsidies and domestic subsidies to agriculture, but modeling the distortionary effects of specific measures such as tariff-quotas, various forms of quantity restrictions, and so-called decoupled support is extremely difficult at a global level. There is little empirical evidence on which to base specification of investment and productivity effects, and thus these are largely ignored, (although they could presumably be important). The level of disaggregation by income groups within countries also tends to remain low, if at all. As recognized by the authors, the many assumptions underlying these models can lead to large over- or underestimates of the impacts of merchandise trade reforms on net real household income, although with much more consensus on the structural impacts. Yet, there is no real alternative to using these models when analyzing reform with many indirect effects, and comparison of outcomes across models is important to get a sense of their validity.

Sources: Francois and Martin 2007; Hertel and others 2006; van der Mensbrugge 2006.

Table 4.2 Estimated cost distribution of current trade policies
(percent of costs of current global trade policies in 2015 relative to a full trade liberalization scenario)

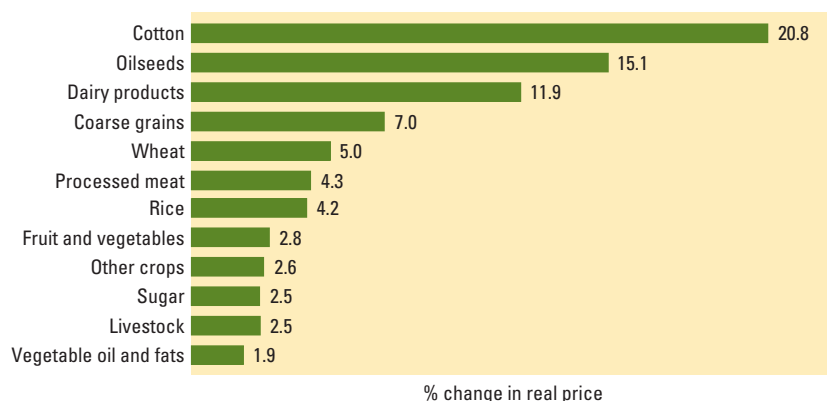
	Distribution of welfare costs		
	Developing countries	Developed countries	Total
Source of welfare costs:			
Developing countries policies			
Agriculture and food	9.8	6.6	16.4
Other sectors	5.2	23.0	28.2
Developed countries policies			
Agriculture and food	9.1	38.0	47.0
Other sectors	5.9	2.4	8.4
All countries trade policies (sum of the above)	30.0	70.0	100.0
Real GDP cost	0.8	0.6	0.7

Source: Anderson, Martin, and van der Mensbrugge 2006a.

Note: The full trade liberalization scenario is based on estimates of bilateral tariffs and domestic and export subsidies as of 2001. Bilateral trade preferences are included.

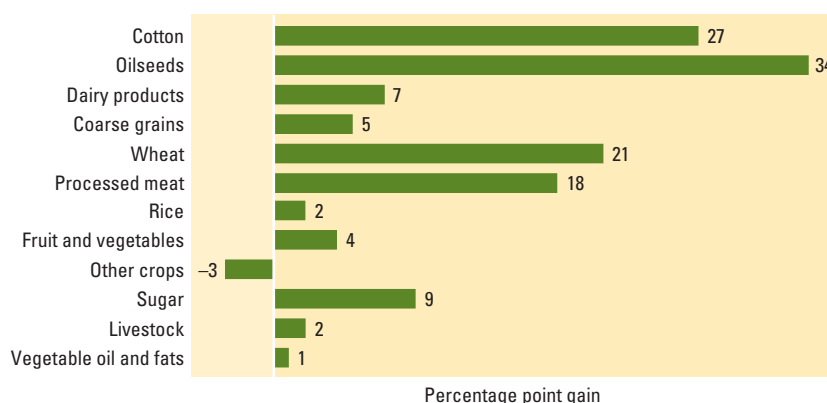
Oilseed production subsidies in the OECD and import tariffs in some developing countries are the main causes of the current oilseed trade share loss to developing countries as a group. While OECD country

Figure 4.6 Estimated real international commodity price increases following complete trade liberalization



Source: Anderson, Martin, and van der Mensbrugge 2006a.

Figure 4.7 The corresponding gain in the estimated trade shares of developing countries



Source: Anderson, Martin, and van der Mensbrugge 2006a.

tariffs on oilseeds are low, many countries provide support for domestic production through farm subsidies. India and China, the largest importers of oilseeds, impose significant import tariffs. Full trade liberalization is estimated to raise international oilseed prices and production in Latin American and Sub-Saharan Africa, reduce oilseed production in OECD countries (from subsidy removal), with little aggregate net impact in South and East Asia as price effects of lower import tariffs (mainly in India and China) would be offset by higher international prices.¹⁸

OECD cotton production subsidies, primarily in the United States, significantly reduce the share of cotton exports from developing countries. Several developing

countries also provide significant direct assistance to cotton producers (for example, China) and apply import tariffs of up to 10 percent (Argentina, Brazil, Egypt, India, and Uzbekistan).¹⁹ Full trade liberalization would increase international prices and production in Sub-Saharan Africa. West African cotton exports are estimated to increase by 60 percent.²⁰ Removing U.S. cotton subsidies alone is estimated to increase the incomes of West African cotton producers by 8 to 20 percent.²¹ Production in OECD countries is estimated to decline significantly in the absence of current producer subsidies.

With international food prices expected to increase, there is particular concern for food-importing developing countries.²² Because many of the poorest countries spend a large part of their incomes on cereal imports, they may incur an overall welfare loss despite gains from price increases in nonfood commodities such as cotton.²³

Almost all of the agriculture-based countries are net importers of cereals, with a large share of their export earnings spent on cereal imports—more than 10 percent over the past 10 years in Benin, Burundi, Ethiopia, Mozambique, Niger, Rwanda, and Sudan, and 20 percent in Burkina Faso. An increase of cereal prices by about 5 percent (the change expected from full liberalization) would negatively affect these cereal importers. This expected long-term price change is small relative to short-term cereal-price movements, as experienced for maize with the more than 50 percent increase in international prices over the past two years. A cereal price increase may also accentuate the problems associated with fluctuations in domestic production (food security focus). Yet, many of the same countries are net exporters of oilseeds and cotton. Sudan earns on average 12 percent of its foreign exchange from oilseeds exports and 7 percent from cotton exports. Over the past 10 years, cotton exports on average accounted for 40 percent of total exports from Benin, 25 percent from Chad and Mali (although these shares have been decreasing), and 30–60 percent from Burkina Faso. Trade reforms that increase the price of cotton and oilseeds simultaneously with that of cereals appear to more than compensate

these countries for the foreign exchange loss on cereal imports. There are, however, food-importing countries that produce little or no cotton and oilseeds—such as Burundi, Kenya, Niger, and Rwanda—and they would remain vulnerable to cereal price increases. Additional investments in domestic agriculture to raise the productivity of food staples may be needed for the most vulnerable countries.

Faster agricultural output growth in Latin America and Sub-Saharan Africa

In the World Bank study, agricultural output growth in developing countries is estimated to increase from an annual rate of 3.9 percent in the baseline scenario to 4.2 percent under the full liberalization scenario, an 8 percent increase in the growth rate or a 4.3 percent increase in agricultural output over a 10-year period. Latin America and Sub-Saharan Africa share the largest gains, while developed countries, South Asia, and Europe and Central Asia are estimated to lose on average (figure 4.8).

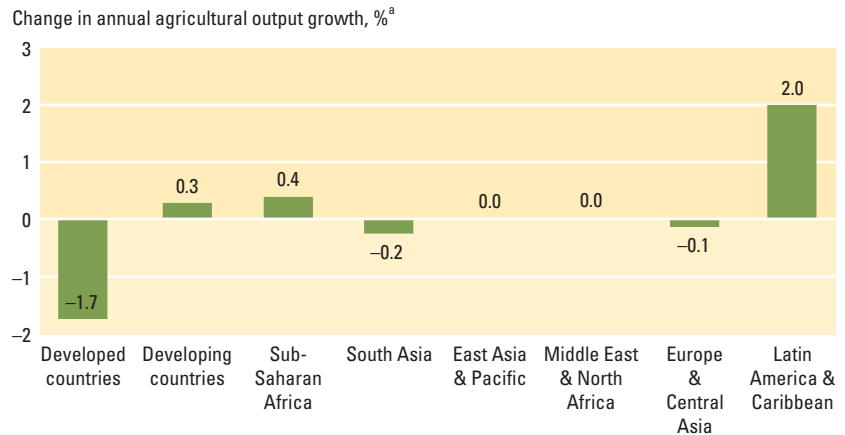
Most of the gains to developing countries are estimated to come from efficiency gains.²⁴ Hence, complementary investment support will be needed to facilitate adjustment to realize these efficiency gains from trade reforms.

Poverty declines in many countries, but not in all

Not everyone will gain from agricultural trade liberalization; there will be losers across and within developing countries. Tracing the overall welfare effects of trade policy reform on poverty requires a comprehensive approach that links a broad general equilibrium macroeconomic model with detailed household survey data. A recent study of 15 developing countries takes this approach.²⁵

Several broad regularities emerge from the study. Removal of trade-distorting agricultural policies in developed countries has mixed terms-of-trade effects on developing countries. Term of trade improves for developing countries exporting commodities currently protected in developed

Figure 4.8 Latin America and Sub-Saharan Africa are expected to have higher agricultural output growth under global trade reforms



Source: Derived from Anderson, Martin, and van der Mensbrugge 2006a.

a. Difference between estimated average annual agricultural growth to 2015 under full liberalization in 2005 and the baseline without liberalization.

countries, but worsens for net importers of these commodities. Subsequent changes in national welfare usually follow the direction of these terms of trade changes, but changes in poverty often do not follow this pattern. A fall in poverty can occur even with worsening terms of trade (as estimated for Bangladesh), and vice versa (as estimated for Vietnam) (table 4.3). In contrast to the dominance of the terms-of-trade effects from developed-country reforms, the gains from developing-country agricultural trade reforms are estimated to come mainly from efficiency gains from their own country reforms. These gains are estimated to have positive poverty-reducing effects. However, the magnitude of these effects varies across countries, depending on the size of the prevailing distortions.

The transmission of global trade reforms to poverty reduction involves many channels, and the specific effects are as varied as the countries themselves. Some developing countries are estimated to benefit from large terms-of-trade improvements following developed country reform, such as Brazil (competitive in heavily protected agricultural products such as sugar, oilseeds, and beef) and Thailand (an exporter of rice) (table 4.3). The terms-of-trade improvements translate into higher levels of national welfare in Thailand than in Brazil as the former is more trade dependent. The

Table 4.3 Illustrative poverty effects from agricultural trade reform in developed and developing countries

	Brazil	Thailand	Vietnam	Mexico	Mozambique	Bangladesh
Developed countries liberalize						
Change in:						
Terms of trade (percent)	4.9	1.1	0.3	-0.2	-0.4	-0.5
Welfare (percent)	0.7	0.8	0.2	-0.2	-0.6	-0.2
Poverty (percent)	-1.8	-6.6	0.2	0.3	0.1	-0.1
Developing countries liberalize						
Change in:						
Terms of trade (percent)	0.6	0	-0.4	-0.3	0.6	-0.4
Welfare (percent)	0.1	0.5	1.1	0.1	1.8	0.3
Poverty (percent)	-0.2	-4.6	-1.7	0.6	-1.1	-0.2
Both developed and developing countries liberalize						
Change in:						
Poverty at \$1 a day (percent)	-1.9	-11.2	-1.5	0.9	-1.0	-0.3
Poverty at \$1 a day (thousands of people)	-445	-133	-23	86	-62	-128

Source: Hertel and others 2007.

Note: Six of the 15 countries are presented in the table above, selected to illustrate the different transmission magnitudes from terms of trade, to welfare, to poverty reduction across countries. Of the 15 countries studied, 2 were estimated to experience an increase in poverty from agricultural trade liberalization in both developed and developing countries.

terms of trade are estimated to worsen for countries such as Bangladesh (an importer of cotton, wheat, and oilseed) and Mozambique (an importer of wheat and rice and an exporter of seafood, the international price of which is expected to decline with global trade reforms).

The poverty effect of terms-of-trade changes from developed-country agriculture reforms depend on where the poor are, what they do for a living, and what they consume. For example, smaller terms-of-trade changes for Thailand are estimated to lead to larger poverty impacts relative to Brazil. The reason: one-third of the extreme poor (below \$1 per day) in Brazil mostly live off transfers and lose from food price increases, which dampen the employment and income gains of the other two-thirds of the extreme poor, mainly unskilled agricultural workers and self-employed. In contrast, the extreme poor in Thailand are predominantly rural households with diversified income sources and are estimated to gain from price increases. In Bangladesh, the estimated terms-of-trade loss translates into lower poverty levels as the poor are heavily reliant on unskilled wage income and benefit from lower food prices.

Developing-country agricultural trade reforms are estimated to have a much smaller impact on their own terms of trade than developed-country policy changes (table 4.3). Removing developing-country

import tariffs lowers the price of food for poor consumers and lowers the income of surplus food producers. For example, in Mexico poverty in rural households is estimated to rise from domestic tariff cuts. By contrast, in Vietnam both real agricultural incomes and real wages are estimated to rise following reforms, generating broad-based poverty reductions.

Overall, when developed and developing country agricultural trade reforms are combined, the extent of poverty reduction tends to be enhanced—and the proportion of the population experiencing a poverty rise diminishes.

Gainers and losers among the poor within countries

A particular concern with trade policies for staple foods is their potential welfare impact on the poor. While most poor are net buyers of food, others are net sellers. Any change in price will therefore produce gainers and losers among the poor. Considering only the average poverty effect (as presented in table 4.3) may hide important consequences of policy reform on poverty across households (box 4.7). The distribution of gainers and losers is country specific.

In assessing the impact of food import prices on household welfare, the degree of transmission of international prices to rural households also matters. The degree of transmission varies significantly by coun-

BOX 4.7 *Net buyers and net sellers of food staples within a country*

The vulnerability of poor people to food price increases varies across countries (table below). In Bolivia and Ethiopia, the diet includes staples such as potatoes, sorghum, and teff that are not traded by these countries on international markets. As a result, poor people are less vulnerable to variation in prices of imported cereals. In the five other countries in the table, tradable products (rice, wheat, maize, and beans) represent between 40 percent and 64 percent of food expenditures. In Bangladesh, more than 50 percent of the poor are in rural landless

households, and they spend 27 percent of their total budget on purchasing rice. Poor Bangladeshis are the most vulnerable to increases in rice prices. Only 8 percent of the poor are net sellers of food, so the aggregate welfare effect of a change in rice prices is dominated by its effect on net buyers. Zambia has few landless poor people but many smallholders who are net buyers, and they are affected by price changes of imported maize and wheat.

In contrast, Cambodia, Madagascar, and Vietnam have many smallholders who are

net sellers of food staples. As rice sales (and maize in Madagascar) represent a large share of household income in these countries—up to 70 percent in Madagascar—net sellers are sensitive to any changes in rice prices. Aggregate income gains to sellers from an increase in rice prices overwhelm the loss to buyers. Similarly, in Morocco 35 percent of poor rural households are net sellers and lose more in the aggregate than net buyers from cereal price declines.²⁶

A majority of the rural poor are not net sellers of tradable food staples.

	Bolivia 2002	Ethiopia 2000	Bangladesh 2001	Zambia 1998	Cambodia 1999	Madagascar 2001	Vietnam 1998
Share of internationally traded staples in food consumption of the poor (%)	25.5	24.1	41.2	40.4	56.3	62.7	64.4
Distribution of poor (%)							
Urban (buyers)	50.9	22.3	14.9	30.0	8.4	17.9	6.1
Rural landless (buyers)	7.2	—	53.3	7.4	11.5	14.8	5.8
Smallholders net buyers	29.1	30.1	18.8	28.8	25.8	18.9	35.1
Smallholders self-sufficient	7.1	39.5	4.6	20.8	18.0	27.3	19.4
Smallholders net sellers	5.6	8.0	8.4	13.0	36.3	21.1	33.6
	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Share of net purchase/sale of staples by specific groups of the poor (% of the total expenditures of the specific groups)							
Purchase per net urban buyer	12.0	9.4	22.7	11.5	5.9	4.8	13.1
Purchase per net rural buyer	12.9	28.4	27.3	18.9	20.8	10.7	19.9
Sales per net seller	37.6	35.1	39.7	21.0	39.0	70.3	37.4
Share of net purchase/sale of staple aggregated across all the poor (% of the total expenditure of all poor)							
Purchase by all poor net buyers	11.3	10.2	22.0	10.3	8.1	3.6	8.8
Sales by all poor net sellers	1.4	2.8	4.0	2.3	14.4	18.4	12.5

Source: Authors' calculations, based on data provided by Ataman Aksoy and Aylin Isik-Dikmelik, personal communication.

Note: Data are only for those people below the national poverty lines.

Tradable staples included are rice, wheat, maize, and beans. Excluded staples are cassava, potatoes, plantains, sorghum, and teff.

— = not available.

try, affected by transaction costs and tradability within the country. For example, a recent study of eight developing countries indicates low price transmission to farmers in Colombia, Egypt, Ghana, Indonesia, and Madagascar. However, in Argentina, Chile, and Mexico about 60 percent of domestic price variability can be explained by world price changes.²⁷ Price changes at the household level determine the magnitude of welfare impacts.²⁸

Beyond the first-order food price effects, trade liberalization affects the poor through the creation and loss of markets and

through the employment and wage effects induced by the price changes.²⁹ In many countries, such as Mali and Burkina Faso, a large number of smallholders produce both food and export commodities and may benefit from trade liberalization, which would result in a rise in cereal and cotton prices. The ability of farmers to respond to new market opportunities depends on such nonprice factors as market infrastructure, institutions, and services. Broad-ranging trade reform in Vietnam in the early 1990s induced a large supply response and welfare gain among poor farmers.³⁰

Rising or falling prices of staples and other agricultural products can also induce changes in employment and wages. The direction and magnitude of these effects are case specific and depend on labor market conditions. In countries with a large share of a landless rural population working in agriculture for wages, as in South Asia, labor market impacts can be significant. A study of Bangladesh concluded that the average landless poor household loses from an increase in rice prices in the short run, but gains in the long run as wages rise over time.³¹ An opposite result is obtained in Mexico, where the reforms of the 1990s induced a decline in unskilled wages and agricultural profits that offset the gain from lower prices of consumption goods.³² Decompositions of incomes in Vietnam, Bangladesh, and Uganda reveal that labor market effects are indeed important channels for trade reforms to affect welfare.³³

Scope for achieving potential gains

Advancing global trade liberalization is not easy, as demonstrated by the Uruguay and Doha Rounds of trade negotiations. Vested interests strongly defend many current policies and are reluctant to change. Most past policy reforms have come from unilateral reform efforts, which will continue to be important in the future, but multilateral and regional agreements remain important instruments to remove distortions in international and regional markets.³⁴

Multilateral agreements: the Doha Round

The Doha Development Round of trade negotiations provides an opportunity to realize at least part of the potential gains of full trade liberalization. While the potential gains from full trade liberalization as a share of GDP are larger for developing countries than for developed countries (table 4.2), the estimated impacts of a potential Doha agreement suggest the gains are smaller for developing countries.³⁵ Part of the reason: Doha places heavier emphasis on eliminating export subsidies and on cutting domestic subsidies than on reducing tariffs in both developed and develop-

ing countries. Tariff reduction is expected to have a greater impact on global welfare and poverty reduction than the removal of subsidies in developed countries, although both are important.³⁶ There are exceptions (for example, cotton) where reducing export subsidies are expected to have large impacts and where important gains from the Doha round can be made.³⁷

The suspension of the Doha Round of trade negotiations between July 2006 and January 2007, and the fitful progress following the resumption of talks, raise important questions about the prospects for further reforms through multilateral agreements. There are several possible scenarios.

A Doha Round agreement—content matters. The best outcome would be an agreement on further reforms, particularly on agricultural products important to the poorest countries, such as cotton. The impact would depend on the following:

- The extent to which applied or actual tariffs are below their upper-bound rates agreed upon at the WTO. Current applied rates are generally below bound rates, requiring larger cuts in bound rates if applied rates are to be cut. Average bound tariffs are almost double applied rates in developed countries, and over two and a half times applied rates in developing countries.³⁸
- The level of developed-country subsidy reduction for key export crops, such as cotton. As domestic support programs account for 89 percent of the global welfare costs of cotton trade policies, reducing these subsidies could be an important gain to developing countries, particularly the cotton-producing countries in Sub-Saharan Africa. Again, the limits agreed at WTO greatly exceed current support levels.
- The treatment of “sensitive products,” which if not tightly constrained can undercut reform impacts. Developed countries are seeking smaller tariff and subsidy reductions for self-selected sensitive products than implied by a general formula approach. Estimates show that if only 1 percent of all tariff lines in the EU were exempt, the expected overall aver-

age tariff reduction estimated under the Doha Round, with no exemptions, could halve.³⁹ The United States proposal is to limit sensitive products to 1 percent of all tariff lines, while the EU proposal is 8 percent.

- The treatment of “special products.” Developing countries are seeking small or no tariff cuts on special products—deemed important for food security, livelihood security, and rural development. The potential impact of any exemptions will likely be country specific. Net buyers of food, especially the very poor, will likely be hurt by tariffs on food staples that raise prices above what they would be without tariffs (box 4.7). Net sellers would benefit. Some developing countries exporting products that may be deemed “special” by other countries are concerned about the potential restrictions on developing-country market access for these products. These factors need to be considered in any agreements on special products. (See also the section on transitional support.)
- Special and differential treatment for developing countries. Developing countries are required to make smaller cuts in protection than developed countries under the current development round of trade negotiations (under special and differential treatment agreements). While developed-country agricultural trade reform will likely have a larger poverty impact on many countries than developing-country reforms, the latter can potentially reduce poverty more consistently across a large number of developing countries—both are important.⁴⁰

Following the above, a Doha agreement would capture some of the benefits of full liberalization if that agreement lowers tariff bindings significantly below actual levels, reduces developed-country subsidies where they matter most for developing countries (such as for cotton), limits sensitive-product tariff lines, and reflects the net-buyer status of the poor in special-product agreements.

Scenarios in the absence of an agreement. In the absence of a Doha Round trade agreement, developing countries would

need to use bilateral and regional agreements to advance reforms. More bilateral and regional trade agreements on agriculture would be a less-efficient and more-costly outcome than further global reform, perhaps delaying and complicating it. But regional agreements can often be useful for addressing issues not on the multilateral agenda (see below).

The worst outcome of a Doha Round failure would be a spiraling back to global protection, including in developing countries, reversing past efficiency gains and impacts on poverty reduction. OECD subsidies are already inducing some developing countries to call for higher protection rates on a range of agricultural products (as at the 2006 Food Security Summit for Sub-Saharan Africa).

Regional trade agreements

As trade among developing countries is a growing share of their overall trade, improving developing-country access to developing-country markets can have a significant effects.

Regional agreements can address regional collective action issues that are not on the agenda in multilateral trade discussions. For example, regional agreements can reduce political tension and take advantage of economies of scale in infrastructure provision. Greater regional integration and opening regional markets can be important in regions with many small countries (Sub-Saharan Africa, for example).⁴¹

More than a third of global trade is between countries that have some form of reciprocal regional trade agreement.⁴² These agreements have usually been easier to reach than multilateral agreements, with fewer participants involved, and they usually extend beyond tariff reductions to reduce impediments associated with border crossings, regulations, and standards. Not all such agreements create new trade and investment—some instead divert them. (For example, countries with high external border protection may actually reduce members’ trade overall, even through trade within the group increases.)

African countries have four regional trade agreements on average, and Latin American countries have seven, adding to

the complexity of trade. A recent World Bank review of regional agreements concluded that agreements most likely to increase national incomes are those with low external “most-favored nation” tariffs, few sectoral and product exemptions, non-restrictive rule-of-origin tests, measures to facilitate trade, rules governing investment and intellectual property that are appropriate to the development context, and implementation schedules put into effect on time.⁴³ Implementation has proven difficult in many countries: volumes of formal documents legalize free movement of goods and people across borders, but implementation remains weak. Efforts are needed to ensure policy harmonization, reduce non-tariff barriers, reduce border formalities and corruption, address problems of currency transfers, and capitalize on economies of scale in infrastructure.

Transitional support

Transitional support may be needed to facilitate further reforms and sector adjustment. Important issues are the role of transitional protection, the ability to shift to alternative forms of revenue, and the needed public spending to support transitions.

Arguments for and against protection of food staples in developing countries

OECD policies. There have been recent calls by some developing countries for interim import protection in response to current OECD trade policies. The arguments are that OECD protection reduces international prices below the long-term trend, which harms the competitiveness of import-competing food sectors and leads to the decapitalization of agriculture and to rural-urban migration. Therefore, it is argued, import protection is justified to maintain the domestic industry.

But there are several counterarguments. The average distortion in world prices from trade policies is about 5 percent for food staples, as discussed elsewhere in this chapter. This long-term effect is small relative to recent price changes, as reflected by the more than 50-percent world maize price

increase over the last two years. Moreover, because of infrastructure and transport costs, the transmission of world food staple prices to domestic producers is very imperfect, especially in agriculture-based countries.⁴⁴ In fact, most food staples in most agriculture-based countries are not traded internationally, but only locally and in the region (see focus C). So the overall effect of trade distortions on farm incomes of food staple producers in the poorer developing countries is likely to be small.

In the case of a tradable food staple with high price transmission, a case for protection could be made for modest, short-term protection where there is a high likelihood of reduced protection in world markets in the short to medium term that would cause world prices to rise, and where the domestic industry would be clearly competitive with undistorted prices. But even in these cases, protection would be modest (that is, of a magnitude close to the expected rise in world prices, which for cereal products is about 5–10 percent). The political difficulties of adjusting policy once the trade distortion is removed must be considered. Consequently, credible exit strategies should be specified if protection is introduced.

Food security. Aside from arguments about distorted world prices, the case is sometimes made for protecting domestic food staple industries in the name of food security. This should be considered with caution. First, consumers bear the cost of protection, particularly poor consumers who spend a high share of income on food staples, and many rural poor are net food buyers in many countries (see box 4.7). Second, poverty and insufficient purchasing power rather than lack of food supply is usually the main cause of food insecurity, although there are important exceptions in the agriculture-based countries (focus C). For example, in 2004 Indonesia enacted a temporary import ban on rice—which has now become permanent—to increase domestic production. Two-thirds of the poor are net consumers of rice and are hurt by the rice price increases induced by the ban. The impacts of the ban have been identified as the main cause of the increase

in poverty headcount from 16 percent in 2005 to 18 percent in 2006.⁴⁵

If an industry is already protected, rapid liberalization for a sector that is a large and tradable part of the economy can generate significant unemployment and hardship in the short term, especially for the poor, who lack the assets or knowledge to take advantage of new opportunities.⁴⁶ In this case, it is imperative to include transitional support for vulnerable groups to ensure that they benefit from growth, and to sustain political support for trade reform (see below). For those with productive assets, this transitional support should be provided not only for income support (as in PROCAMPO in Mexico), but also to facilitate transition to competitive activities.

Safeguard policies. Governments that require a safety net to increase their comfort level when they liberalize markets and reduce applied tariffs, may consider price bands to reduce exposure to world price variability, if such safeguard policies are allowed in the new round of WTO negotiations. Price floors implemented through a temporary increase in the import levy may help to prevent extreme hardship to producers in years when world prices are extremely low. Similarly, temporary reductions in tariffs could be implemented when world prices are very high. (It must be recognized, however, that the ability of this mechanism to significantly reduce upward price volatility is limited, unless there is significant initial tariff protection, which is not likely to be either efficient or equitable.) To minimize the economic costs of any such variable levy schemes, and to ensure that they do not become permanent increases in protection, it is important to have clearly defined rules for safeguard interventions that cannot be captured by vested interests, and that temporary tariff increases are infrequent and of short duration.⁴⁷ To date, there are few, if any, successful examples of using such safeguards and some examples in which they clearly did not work well.

In sum, trade policy on food staples must recognize that protection of domestic production is often not pro-poor. Nor is protection as efficient in helping farmers

as alternative policies such as increasing access to assets and productivity-enhancing investments in research, education, extension, and rural infrastructure. But in recognition of the political sensitivity of these markets and country specificity of trade policy impacts, providing flexibility within trade rules makes sense if it is done in a way that encourages the shift to market liberalization.

Transitioning to alternative forms of taxation

Further reducing the protection of imports and the taxation of agricultural commodity exports can pose a fiscal dilemma for many agriculture-based countries that depend on these revenues for public investment. In Sub-Saharan Africa, trade taxes account for about a quarter of all government revenues; in the developing countries of Asia and the Pacific, they account for about 15 percent.⁴⁸ Agriculture remains the dominant sector in most agriculture-based countries and so will have to continue to contribute to national and local government revenues—consistent with their current level of economic development. Four key principles to guide agricultural taxation, highlighted in a previous analysis of Africa, remain valid:⁴⁹ they should be nondiscriminatory, minimize efficiency losses, and consider the effectiveness of fiscal capture and capacity to implement.

Agriculture should not be taxed at a higher rate than other sectors, and agricultural taxes should be integrated with general value added, profit, and income taxes. Output and input taxes should be minimized. Land taxes can minimize efficiency losses and induce production, although these do not generally exist in agriculture-based countries. Output taxes can be replaced by consumption taxes (sales or value added taxes) in countries with the administrative capacity to implement them.⁵⁰ Capacity to implement new systems will have to be built over many years. In the interim, it may be necessary to rely partly on commodity and input taxes for revenue.

Recent evidence shows a mixed picture in shifting to alternative sources of revenue but provides some lessons on how to deal

with trade revenue losses. Developed countries have recovered all revenue lost from previous trade reforms. Middle-income countries have recovered 45–60 cents of each dollar of lost revenue. Low-income countries have recovered only 30 cents of each dollar of lost revenue. Experience across low-income countries varies widely. Malawi, Uganda, and Senegal have managed to recover most revenue losses. What makes this possible? Efforts to broaden tax bases by reducing exemptions, simplifying rate structures, and improving revenue administration can help, as can excise and broad-based value added taxes on consumption.⁵¹ By contrast, value added systems with multiple rates and exemptions and weak administrative capacity have led to low recovery. Trade reform may need to be sequenced with complementary domestic tax reforms and significant improvements in the quality of agricultural public spending.

Policies and public spending to support transitions

Too often trade liberalization is discussed without considering the important role of complementary policies and programs to facilitate transitions and support the losers. Complementary policies include public investment and other policies that will facilitate response to the new market signals for long-term growth (discussed in the next section). It is necessary to recognize the heterogeneity in the groups adversely affected, examine their distinguishing demographic and geographic characteristics, and analyze the magnitude of the losses and potential gains. Transitional support may include the following:

- *Grants to facilitate production shifts.* An example is the Turkey program to reduce agricultural subsidies. Per-hectare grants were paid to farmers to facilitate their transition out of tobacco and hazelnut production and into more efficient alternatives such as maize, soybean, sunflower, and vegetables. Complementary support was provided to improve the efficiency of the cooperative marketing channels.⁵²
- *Cash transfers and social safety nets.* To sustain the extreme poor and to support

needed adjustments, the government may have to make cash payments and provide social safety nets, as in Mexico through the PROCAMPO program (see box 4.5).⁵³ However, cash transfers to compensate for losses are insufficient to induce supply response. Targeted investments, such as infrastructure investments and extension services, are needed to improve productivity or education and to facilitate transition (see next section).⁵⁴

The challenge is to ensure an adequate balance among the complementary income support for transitions and core public programs to spur long-term agricultural growth and poverty reduction. The risks of falling into protection and subsidy traps induced by a dominant focus on transitional support at the expense of long-term growth are high. Governance problems that may limit the capacity to implement these programs must also be addressed (chapter 11).

Public investment for long-term development

The magnitude of smallholder supply response to trade and price policy reforms depends on, among other factors, rural infrastructure (irrigation, roads, transport, power, and telecommunications), markets, rural finance, and research.⁵⁵ Where these are deficient, complementary investments will be necessary to take advantage of trade reforms. Similarly, if these nonprice factors are in place but domestic macroeconomic and sectoral policies depress incentives to produce, the supply response may be limited. In many countries, particularly the agriculture-based ones, these nonprice factors are undeveloped and need significant investment, particularly in market infrastructure, institutions, research and extension, and natural resource management. Over the long term, these investments are likely to be more important than trade reforms in using agriculture for development. Details of investment priorities will be the topics of subsequent chapters.

Public spending has often been diverted from these needed long-term investments to agricultural subsidies. Subsidies are usually economically inefficient and often promote wasteful use of resources at a high cost

to farmers in terms of foregone growth and incomes. Where long-term capital investments have been made, too few resources are allocated to operations and maintenance to ensure the sustainability of these investments.

Agricultural subsidies are defined here as payments from the public budget for essentially private goods such as agricultural inputs. Subsidies can help overcome temporary market failures (as part of a broader strategy), offset fixed costs of infrastructure, and reduce risk (chapter 6). But they have seldom been used for these purposes, have mostly benefited richer farmers, and are often difficult to remove once established—all leading to inefficient and inequitable resource use. Thus the quality of public spending—the efficiency of resource use—is often an even more important issue to address than its level.

Inefficiency of current spending

A large share of public spending has been used to provide private goods at high cost. Public expenditure reviews suggest that agricultural budget allocations to private goods are high: 37 percent in Argentina (2003), 43 percent in Indonesia (2006), 75 percent in India (2002), and 75 percent in Ukraine (2005). Transfers to parastatals and subsidies in Kenya in 2002/03 accounted for 26 percent of total government expenditures in agriculture, and in Zambia in 2003/04, about 80 percent of nonwage spending went to subsidies to farmers for fertilizer and maize prices.

Allocations to subsidies often divert funds from high-return investments in public goods. In Zambia only about 15 percent of the 2003/04 agricultural budget was spent on research, extension services, and rural infrastructure—investments that have shown high payoffs (chapter 7). Reallocating spending on private subsidies to public goods can increase growth.⁵⁶ However, although these subsidies are economically inefficient, they are often politically expedient. Improving the efficiency of resource use thus requires addressing the political economy pressures determining budget allocations (box 4.8).

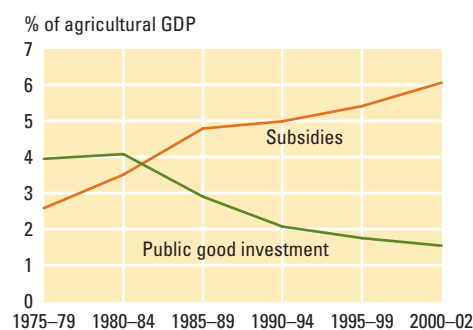
In India, too, the trend has been to move away from public goods investments toward

subsidies. Overall public expenditures on agriculture have remained at approximately 11 percent of agricultural GDP, while the share of subsidies for fertilizer and electricity (see box 4.8) and for support prices for cereals, water, and credit has steadily risen—at the expense of investments in public goods, such as research and development, irrigation, and rural roads. Agricultural spending is about 4 times greater on subsidies than on public goods (figure 4.9). Moreover, the returns on subsidies in India have declined.⁵⁷ These findings and the results from a related study suggest the potential for significant efficiency gains from reallocating public expenditures in agriculture in India.⁵⁸

Reforms to improve the efficiency of rural public spending

Understanding why public rural expenditures are allocated to unproductive interventions requires understanding the political economy of government policies. Institutional, demographic, and economic variables jointly shape the size and quality of public spending. One factor affecting quality is information. The lack of a formal program of expenditure evaluations—combined with a lack of access to public information on expenditures and their beneficiaries—dilutes the effectiveness of any formal accountability mechanisms that might be provided by political checks and balances, a free press, or well-intentioned civil society organizations. With such information gaps, public debates about public policies tend to be manipulated by special interest groups.

Figure 4.9 Subsidies have risen while public goods investments have declined in India



Source: Chand and Kumar 2004.

BOX 4.8 *Examples of subsidies in India and Zambia*

Electricity subsidies to agriculture in India: can greater local accountability induce reforms?

With 55–60 percent of India's irrigated land supplied by groundwater, electricity for tubewell pumps is an important input. Most state governments provide electricity to farmers at a subsidized flat rate—often for free. But the quality of service is poor because of erratic and limited supply and voltage fluctuations, which can result in crop losses from forgone irrigation and damaged pumping equipment.

The electricity subsidies to agriculture are also fiscally draining and environmentally damaging. In Punjab electricity subsidies to agriculture in 2002/03 were 7 percent of state expenditures. Together with other policies that promote water-intensive crops such as rice, the electricity subsidies contribute to the overexploitation of groundwater. About 60 percent of the state's groundwater resources are already overexploited, with extraction rates exceeding recharge rates—clearly not sustainable.

Increasing electricity prices and introducing metering are technically and economically sound, but they are not politically feasible, so far. Larger farmers obviously benefit more from the subsidy, and they have political influence, but there is more to these subsidies.

Their introduction followed massive farmer protests against electricity price increases in the 1980s. Now, their continuation responds to the increasing income disparity between the agricultural and nonagricultural sectors, worsened by India's relatively low agricultural growth rate. Making electricity free is a politically convenient instrument to transfer income

to the agricultural sector. Unlike other policy instruments, it does not require implementation by the (often ineffective) public administration. Farmers who buy water from pump owners—a considerable proportion of farmers in most states—potentially benefit from the subsidy, too, which increases the attractiveness of this policy instrument for politicians who want to win state elections.

Addressing jointly the quality of electricity supply and its cost is a key element of reforming the subsidy policy. However, because of widespread power theft and losses, states lack the credibility to deliver better service in exchange for higher prices. One option would be to decentralize energy supply to local governments or community groups, relying on local accountability to improve electricity quality. Elite capture must still be prevented, but this community-oriented option has the potential to break the political impasse. This exemplifies a tradeoff between potential efficiency cost from the loss of economies of scale in decentralized generation, and not making any progress at all.

Zambia fertilizer subsidies: no strong opposing coalitions

About 5 percent of Zambia's national budget goes to agriculture. In fiscal 2005 more than half the agriculture budget was spent on the Fertilizer Support Program (37 percent) and crop marketing (for maize) under the Food Reserve Agency (15 percent). Only 3 percent of the budget went to irrigation development and other rural infrastructure, and 11 percent to operating costs, which included agricultural

research and extension. Spending on agricultural research and development fell from about 1.2 percent of agricultural GDP in 1985 to about 0.5 percent in 2000.

Why is spending on fertilizer subsidies so high? There are no powerful groups that would benefit from its elimination, despite its being an economically unproductive use of public resources. This contrasts with early reforms in maize milling, where the private sector gained significantly from privatization and strongly supported the reform. Under the fertilizer program, traders often benefit.

A 2002/03 household survey showed that only 29 percent of farmers acquired fertilizer, 59 percent of them through private dealers and 36 percent through the government Fertilizer Support Program. Both groups had higher income and wealth and were close to tarmac roads and district centers. However, those receiving fertilizer through the government program were predominantly civil service employees, in a program intended to be targeted at the poor. Parliamentarians also benefited, sometimes informing groups of farmers that there was no need to repay loans on fertilizer received.

The economic costs of the program are high—both from lower spending in higher-productivity areas such as agricultural research, extension, and infrastructure, and from slower diversification away from maize production.

Sources: Beintema and others 2004; Birner, Sharma, and Palaniswamy 2006; Govereh and others 2006; Pletcher 2000; World Bank 2003d.

Rigorous evaluations, their wide dissemination, and increasing transparency could reduce this information gap.

Special interest groups also influence patterns of public spending. In Latin America the share of rural subsidies provided by governments is higher where there is more income inequality.⁵⁹ Economic sectors or groups of producers that control a large portion of national wealth also have the means to influence public policies to their benefit. If the ineffectiveness of public expenditures is a result of the influence of special interest groups, the solution might be to link budget implementation to participatory decision making in which poor rural households have a voice (chapter 11). This might work best for local expenditures where adminis-

trative decentralization accompanies political democratization.⁶⁰ Still, the challenge is to avoid elite capture, and so far the evidence on the effect of decentralization on corruption is mixed.⁶¹

Conclusions

Recent policy reforms have improved price incentives for agricultural producers in developing countries. Net agricultural taxation across these countries has, on average, declined sharply. Between 1980–84 and 2000–04, it declined from 28 percent to 10 percent in agriculture-based countries, from 15 percent to 4 percent in transforming countries, and from marginally negative to a net protection of 9 percent in the urban-

ized countries. But changes in net taxation in some countries are the result of rising protection of agricultural imports with continuing taxation of exports. These differences suggest considerable space for further policy improvements, but with potential distributional impacts within countries. In contrast there has been relatively little progress in the overall decline in OECD producer support. However, there has been a shift away (decoupling) from support directly linked to product prices, volumes, and area planted to other less-distorting forms such as cash transfers, particularly in the EU.

The estimated impacts of full trade liberalization are substantial for developing-country trade and agricultural output growth. Full trade liberalization is expected to increase international commodity prices by 5 percent on average, developing-country share in global agricultural trade by about 9 percentage points, and agricultural output growth in developing countries on average by about 0.3 percent a year. Urbanized countries, particularly those in Latin America with competitive advantage in many of the currently protected products, stand to benefit the most. Not everyone will gain from liberalization: net-selling farmers will benefit, while households that are net buyers of food may lose from higher food prices if their wages or other earnings do not increase enough to compensate.

Further trade liberalization in developing countries may need to be sequenced with tax reforms to reduce tax losses from trade revenues and subsequent public investment in the agriculture sectors in these countries. Complementary policies and programs are needed to compensate losers in developing countries and to facilitate rapid and equitable adjustment to emerging comparative advantages.

Supply response to trade reforms depends on public investments in core public goods such as irrigation, roads, research and devel-

opment, education, and associated institutional support. But public investments in agriculture are too often squandered on regressive subsidies. Significant room remains for improving the efficiency of public resources by increasing investments on high-priority public goods. Needed are actions to increase information, accountability, and commitment. Information gaps in public knowledge of budget allocations and impacts of public spending on agriculture have to be closed through greater publicity and transparency of budget allocation and evaluation.

Political economy determines the pace and extent of reform and has to be addressed in both developed and developing countries. Building coalitions to support and sustain reforms can help. The WTO has induced reform, and local media have played supportive roles (as in the U.S. cotton industry). In some cases, bargained compromises and compensation schemes for the losers may be needed—as in the new Japanese rice policy reforms, the EU sugar reforms, and Mexico's 1990s reforms. Linking domestic agricultural reforms to a broader set of economy-wide reforms can strengthen reform coalitions and increase the likelihood of progress, as happened in many developing countries in the 1980s and 1990s.

Key elements of the future agenda are to continue to get prices right through trade and domestic policy reform, to ensure complementary tax reforms to replace lost trade revenues for reinvestment in the sector, to ensure that the quality of public spending improves, to provide support to complementary programs to facilitate transitions, and to invest massively in core public goods for longer-term sustained growth. All of this requires a comprehensive approach beyond price and adjustment; governments must focus on improving market infrastructure, institutions, and support services—topics of the subsequent chapters.