

INTRODUCTION AND OVERVIEW

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In recent years, agricultural protection and its impact on developing countries have attracted growing attention. While manufacturing protection has declined worldwide following substantial reforms of trade policies, especially in developing countries, most industrial and many developing countries still protect agriculture at high levels. Agricultural protection continues to be among the most contentious issues in global trade negotiations, with high protection in industrial countries being the main cause of the breakdown of the Cancún Ministerial Meetings in 2003.

Why Highlight Agriculture?

What happens in the global agricultural market is important for developing countries beyond the price changes triggered by global reforms. For countries with a small urban population, increasing agricultural exports can accelerate growth more than expanding domestic market demand can. Although food production for home consumption and sale in domestic markets accounts for most agricultural production in the developing world, agricultural exports and domestic food production are closely related. Export growth contributes significantly to the growth of agriculture overall by generating cash income for modernizing farming practices. For

those leaving the farm, growth and modernization of agriculture create jobs in agricultural processing and marketing, as well as the expansion of other nonfarm jobs.

Although most successful developing countries have not relied on agriculture for export expansion and growth, growth in agriculture has a disproportionate effect on poverty because more than half of the populations in developing countries reside in rural areas and poverty is much higher in rural areas than in urban areas. Some 57 percent of the developing world's rural population lives in lower-middle-income countries, and 15 percent lives in the least-developed countries. Even though historical trends show that agriculture's importance diminishes over time and the share of population in rural areas declines, there will still be more poor people in rural areas than in cities for at least a generation.

Why This Book?

This book explores the outstanding issues in global agricultural trade policy and evolving world production and trade patterns. Its coverage of agricultural trade issues ranges from the details of cross-cutting policy issues to the highly distorted agricultural trade regimes of industrial countries

and detailed studies of agricultural commodities of economic importance to many developing countries. The book brings together the background issues and findings to guide researchers and policymakers in their global negotiations and domestic policies on agriculture. The book also explores the key questions for global agricultural policies, both the impacts of current trade regimes and the implications of reform. It complements the recent agricultural trade handbook that focuses primarily on the agricultural issues within the context of the World Trade Organization (WTO) negotiations (Ingco and Nash 2004).

The first part of the book replies to the broad, cross-cutting questions raised by researchers and policymakers about agricultural trade regimes and trade performance. What has happened to the structure of agricultural trade over the last two decades? What is the level of protection across commodities and countries? Do tariff preferences make a big difference in the levels of protection facing developing-country agricultural products? Has the move toward decoupling agricultural support from production reduced the effects of agricultural support? Do stricter food safety standards constitute a new barrier to market access by developing countries? How big are the potential gains from global liberalization, and how sensitive are estimates to various assumptions? While these topics have been analyzed before, much of the work here relies on new information. The answers to these questions give a clearer picture of global agricultural policies and reforms.

However, broad answers to these questions typically do not convince the critics and, more important, provide little implementable guidance on specific policy issues. Micro details and partial equilibrium analyses at country and commodity levels are necessary to ensure that these broad results are credible and specific enough to be a basis for policies. The second part of the book complements the broad answers with detailed studies of commodities that are of considerable economic importance to many developing countries and that are representative of the export bundle of developing countries. The commodities selected are sugar, dairy, rice, wheat, groundnuts, fruits and vegetables, cotton, seafood, and coffee. Most of the products selected have highly distorted policy regimes in industrial and some developing countries. The

general issues of competition, entry, and exit, which are major issues for products with distorted policies, are equally important for the less-protected traditional export products such as coffee, tea, and cocoa. Exporters of such products still face long-term price declines, price volatility, and other problems usually associated with products with distorted policy regimes. Seafood also faces fewer trade distortions but is included as representative of the problems facing new, expanding sectors in the presence of domestic subsidies in industrial countries.

The commodity studies analyze the current trade regimes in key producing and consuming countries, document the magnitude of distortions in these markets, and assess the distributional impacts (across countries and across groups of consumers, taxpayers, and producers within countries) of trade and domestic policy reforms in developing and industrial countries. These assessments are based on rigorous quantitative analyses of various reform scenarios and disaggregated partial equilibrium models. The impacts of current agricultural trade policies and of policy reforms vary substantially across commodities, and different reforms result in very different gainers and losers.

Some Key Findings

Despite the diversity of the cross-cutting analyses and commodity studies, it is possible to draw some general conclusions. First, these commodity markets exhibit a complex political economy, both domestically and internationally. The arcane nature of many policy interventions in these commodity markets and the many heterogeneous interests exacerbate this complexity. Identifying superior policy options is not difficult, but the feasibility of reform depends on the power of vested interests and the ability of governments to identify tradeoffs and possible linkages that will allow them to pursue multiple goals (food security, income transfers, expansion of domestic value added) more efficiently.

Second, a narrow sectoral or product approach is unlikely to be fruitful in WTO negotiations. The commodity studies illustrate why. They also illustrate that potential tradeoffs exist even within agriculture, as interests differ across commodities.

Third, and perhaps most important, the studies reveal the importance of microanalysis for identifying both the key policy instruments that distort

competition and the likely winners and losers from global reforms (producers, consumers, taxpayers within and across countries). Knowing who is likely to gain or lose from reform is critical for sequencing reforms and putting in place complementary policies, including assistance to reduce the cost of adjustment in noncompetitive sectors.

Fourth, the studies identify trade distortions (border protection) and domestic subsidies as major factors affecting world markets and thus developing-country consumers and producers. A common theme is that border protection is more distorting in most markets, with the notable exceptions of cotton and seafood (corroborating the findings of Hoekman, Ng, and Olarreaga 2002). Both domestic subsidies and border protection contribute to making commodity markets artificially thin, with small trade volumes and a small number of agents, in turn leading to high variability in prices and trade flows. Large trade distortions impede trade flows, depress world prices, and discourage market entry or delay exit by noncompetitive producers. Border barriers are high in most of the commodity markets studied (the exceptions are cotton, coffee, and seafood), including industrial countries and many developing countries. For example, the global trade-weighted average tariff for all types of rice is 43 percent and reaches 217 percent for Japonica rice. Many Asian countries remain bastions of protectionism in their agricultural and food markets.

Subsidies have similar effects, depressing world prices and inhibiting entry by inducing procyclical surplus production by noncompetitive (often large) producers. In dairy and sugar markets, the effects of export subsidies have been smaller than those of tariffs and tariff rate quota schemes, partly because of the export subsidy disciplines introduced in the Uruguay Round Agreement on Agriculture. Many domestic subsidies in Organisation for Economic Co-operation and Development (OECD) countries, such as cotton subsidies in the United States, are countercyclical.

Domestic support and protection policies have substantial negative effects on producers in developing countries, because of the sheer size of the subsidies relative to the size of the market. Cotton subsidies in the United States and European Union (EU), for example, reached \$4.4 billion in a \$20 billion market. Such large subsidies shield noncom-

petitive producers from exit decisions, making decoupling of these policies a moot point. If U.S. cotton subsidies were abolished, revenues for cotton farmers in West and Central Africa would increase by some \$250 million. Total official development assistance (ODA) to the region in 1999 was \$1.9 billion, 15–25 percent of which typically goes to agricultural assistance, not all of it directly reaching producers. One can see the incompatibility between ODA and farm policy in donor countries that subsidize their rich farmers.

Fifth, a development strategy based on agricultural commodity exports is likely to be impoverishing in the current agricultural policy environment in which policymakers in many countries have mercantilist and protectionist reflexes that, when aggregated, compromise world trade in agricultural and food products. The emergence of competitive producers in developing countries does not lead to a rationalization of production among noncompetitive producers as it would in a liberalized market. Instead, noncompetitive producers remain in business, buffered by extensive protection and support.

Potential Winners and Losers from Trade Liberalization

Agricultural trade liberalization would create winners and losers. The studies conclude that reform would reduce rural poverty in developing economies, both because in the aggregate they have a strong comparative advantage in agriculture and because the agricultural sector is important for income generation in these countries.

Resource reallocation within agriculture would be substantial. For example, production of groundnut products in India would likely contract as would vegetable oil production in China, but dairy production and exports would expand in India, and rice production and exports would expand in China. Liberalization of value-added activities is crucial for expanding employment and income opportunities beyond the farm gate. Such findings illustrate the importance of a multicommodity approach to reform, as gains and losses will differ by market. They also illustrate the importance of social safety nets and other complementary policies.

Consumers in highly protected markets will benefit greatly from trade liberalization as domestic

(tariff-inclusive) prices fall and product choice expands. Consumers in poor, net-food-importing countries could face higher prices if these markets were not protected before liberalization, because of higher import unit costs. In practice, however, such concerns have often been exaggerated. For example, dairy consumption in the Middle East and North Africa would be little affected by trade liberalization because, while world prices would rise, high import tariffs would be removed, so that the net impact on dairy consumer prices would be negligible. Consumer prices would rise for rice, however, since the removal of low tariffs would not offset the increase in border prices.

Other winners and losers would also emerge. Multilateral trade liberalization erodes the benefits from preferential bilateral trade agreements and pits low-cost producers in some developing countries (such as sugar producers in Brazil and Thailand) against less efficient producers in the least-developed countries who are currently helped by preferential access. The actual gains from such preferences, however, have been smaller than expected because of efficiency differences.

How these reforms occur will have important consequences for developing countries. The best approach is coordinated global liberalization of policies. This approach would yield the largest price increases to offset some of the lost rents. For example, world sugar price increases alone would offset about half the lost quota rents, or about \$0.45 billion, for countries with preferential access. The analysis shows that losses in rents would be much less than is commonly expected, because high production costs eat up much of the potential benefit from preferential access to the high-price markets. Moreover, the cost to the European Union and the United States of each \$1 in preferential access is estimated at more than \$5, a very inefficient way to provide development assistance. Global liberalization of primary commodity markets should be accompanied by further effective opening of value-added markets, along with some targeted assistance to overcome supply constraints. Supply constraints are particularly acute in Africa and some Latin American countries but are not insurmountable, as success stories in horticultural and seafood markets in Kenya show.

Although the commodity case studies provide evidence that higher market prices would prevail in

traditional agricultural commodity markets (sugar, cotton, dairy, groundnuts, rice, and to a lesser extent, wheat) if trade and domestic distortions were removed, prospects of continuing high prices are limited because of the nature of these markets (a large number of low-cost competitors and inelastic demand). The bulk-commodity route to export expansion requires low-cost conditions and achievement of economies of scale. These markets face a long-term decline in prices as economies of scale and competitive pressures yield lower costs and margins. Domestic farm subsidies in industrial countries have exacerbated this low-price tendency by fostering production beyond what free markets would demand, with dramatic immiserizing consequences in some cases, such as cotton.

Better opportunities exist in new markets such as horticulture and seafood and in more differentiated products (niche coffee markets, confectionary peanuts). The high-quality differentiated-product alternative requires quality upgrades and the necessary infrastructure and institutions to certify products. These new markets imply increased costs to meet quality standards and higher rewards. Producers have to be able to demonstrate quality, an institutional challenge in many countries. This second strategy can be successful only when supply constraints are alleviated. Trade barriers also exist in these new markets, especially with higher safety standards. However, while the findings show that food safety standards are becoming more stringent, the view that standards are simply new barriers to trade has been somewhat oversold.

What the Book Covers

Part 1 contains six chapters on cross-cutting issues, and Part 2 includes nine commodity studies. While the chapters in Part 1 are sequenced to provide a detailed picture of cross-cutting issues in global agricultural trade, they can be read individually as self-contained pieces. The accompanying CD-ROM contains detailed supplementary tables and annexes.

Changes in Agricultural Trade Flows

Chapter 2, "The Evolution of Agricultural Trade Flows," by Ataman Aksoy, gives a bird's-eye view of the changes in global agricultural trade flows since the early 1980s and contrasts these with the progressive global integration of manufacturing. World

trade in agriculture, broadly defined throughout the book to include seafood, processed foods, and some agro-processing such as wine and tobacco products, was \$467 billion in 2001–01, up from \$243 billion in 1980–81. During the 1980s real manufacturing and agriculture exports expanded at similar rates of 5.7 and 4.9 percent a year. However, during the 1990s real agricultural export growth decelerated to 3.7 percent a year, falling well behind the 6.7 percent annual growth in manufacturing.

Developing countries increased their share in manufacturing exports during the 1990s but saw little expansion in agricultural exports, barely maintaining their share of around 36 percent after losing market shares during the 1980s. All of their gains in agriculture during the 1990s came from expansion of their exports to other developing countries. More than 48 percent of world agricultural trade is still accounted for by trade between industrial countries—about the same share as in 1980–81.

This stability of trade shares comes as a surprise, since it was during the 1990s that Uruguay Round commitments in agriculture began to be implemented and rapid trade reforms were introduced in developing countries. More than a third of world agricultural exports are traded within EU member nations and among the three signatories of the North American Free Trade Agreement (NAFTA).

Low-income countries' agricultural trade surpluses against both middle-income and industrial countries has increased. Low-income developing countries now export more to middle-income countries than they do to the European Union, their largest export market in the early 1980s. The agricultural trade surpluses of middle-income countries have diminished. Among industrial countries, Japan has the largest agricultural trade deficit (almost \$50 billion in 2000–01); the European Union, once the largest net buyer of agricultural commodities, has seen its deficits decline; and NAFTA's trade surplus has shrunk considerably. Developing-country regions, after losing market shares during the 1980s, regained most of them by the end of 1990s. The only exception is Sub-Saharan Africa, which lost market shares during the 1980s and did not regain them during the 1990s.

The structure of world trade has changed, especially for developing countries. Nontraditional products, especially seafood and fruits and vegetables, now constitute almost half their exports. Also,

exports of temperate-climate products (grains, meats, dairy products, edible oils and seeds, and animal feed) have surpassed exports of traditional tropical products (coffee, tea, cocoa, textile fibers, sugar, and nuts and spices). More important, exports of fruits and vegetables are now greater than total exports of traditional products. Seafood exports are larger still, with a growing portion of exports coming from aquaculture.

State of Agricultural Protection

Chapter 3, "Global Agricultural Trade Policies," by Ataman Aksoy, summarizes the state of agricultural protection, using data on domestic support policies from the OECD and tariff data from the WTO for a large set of developing and industrial countries. The analysis of experience with the new rules on market access, export subsidies, and domestic support indicates that the effects of implementation of the Uruguay Round Agreement on Agriculture have been modest. Within OECD countries, producer support in agriculture was about \$230 billion in 2000–02, or almost 46 percent of production value (evaluated at world prices), down from approximately 63 percent in 1986–88, but still very high. Of producer support, 63 percent came through higher prices associated with border protection (so-called Market Price Support or MPS) and 37 percent from direct subsidies.

While protection remained high in industrial countries, many developing countries have significantly liberalized their agricultural sectors since the early 1980s. Average agricultural tariffs, the main source of protection in developing countries, declined from 30 percent to 18 percent during the 1990s. In addition, these countries eliminated import restrictions, devalued exchange rates, abandoned multiple exchange rate systems that penalized agriculture, and eliminated almost all export taxes. As overall taxation of agriculture declined in developing countries, reactive protection in response to industrial-country support to agricultural producers increased, especially in food products. All these measures increased incentives for agricultural production in many developing countries. However, without compensating reductions in protection in industrial and some middle-income countries, the result was overproduction (beyond competitive and undistorted market

levels) and price declines for many commodities, reducing opportunities for competitive developing countries to expand exports and rural incomes.

The structure of agricultural tariffs is complicated and nontransparent. More than 40 percent of the agricultural tariff lines in the European Union and the United States contain specific duties, which make it difficult to calculate average tariffs, obscure true levels of protection, and penalize developing countries that supply cheaper products. Specific duties, which are rare in manufacturing, are also used to hide high rates of protection in agriculture. The ad valorem equivalents of specific duties, when they can be measured, are much higher than the average ad valorem duties. Also, a much higher proportion of tariff lines in final products than in raw and intermediate products have specific rates. Low-income countries have more transparent tariff regimes and tend to use ad valorem tariffs.

Average agricultural tariffs in industrial countries, when they can be measured, are some two to four times higher than manufacturing tariffs. Developing-country exports confront tariff peaks as high as 500 percent in some industrial countries. High variance and high peaks make it difficult to measure the real impact of protection on key products, whose high tariff rates are buried in lower average tariffs. This is why the OECD measure of protection, market price support, which compares local and international prices, shows much higher rates of protection than do average tariffs. Tariffs also increase by the degree of product processing, creating an escalating tariff structure that impedes access to processed food markets. In addition, almost 30 percent of domestic production in OECD countries is protected by tariff rate quotas.

Trade Preferences

Industrial countries have established tariff preference schemes to create market access opportunities for developing countries, especially for low-income countries. In chapter 4, "The Impact of Agricultural Trade Preferences on Low-Income Countries," Paul Brenton and Takako Ikezuki examine the impacts of these preferences. For most developing countries, preferences have provided limited gains at best. Many agricultural products exported from developing countries, especially traditional tropical products, are subject to zero duties in industrial

countries, so tariff preferences are irrelevant. Although duties on other primary agricultural products and processed products are often very high, few of these products receive preferences. Nevertheless, for a small number of products substantial preferences are available for certain countries, usually within strict quantitative limits. Countries that produce sugar and tobacco, for example, have received large transfers as a result of these preferences.

Comparison of different preference schemes is difficult because the schemes differ substantially. They differ in the group of eligible countries, the products covered, the size of the preferences granted, and administrative requirements, especially rules of origin. These differences are a major weakness of the current system of preferences. Differences between preference schemes constrain the ability of developing-country suppliers to develop global market strategies.

In general, preferences are unilateral concessions by industrial countries. The agreements require renewal, and specific products can be withdrawn at short notice. This uncertainty has impeded new investment. The most highly protected products, which would have the highest potential margins of preference, are often excluded or preferences are small. Rules of origin for processed products often constrain the ability of countries to expand into these products.

The value of preferences is largest in the EU market, driven mainly by the very high EU prices for sugar. For some countries, such as Mauritius, preferences seem to explain at least part of the relatively strong economic performance and economic diversification. For the majority of low-income countries, however, EU, Japanese, and U.S. preferences have had little impact and have done little to stimulate the export of a broader range of products.

Decoupling Agricultural Support

One key challenge is to lower the effect of domestic subsidies on world production and prices. Although official export subsidies may be small and shrinking, implicit export subsidies created by domestic support are increasing, lending unfair advantage to producers in industrial countries. More generally, there is a move toward supporting agriculture through direct subsidies rather than through border

barriers. Some domestic support to agriculture has moved away from being directly linked to production to being partially decoupled, with payments made based on historical production levels and other mechanisms. Decoupling should reduce the output effects of support and thus increase world prices for the exports of developing countries. The move to decoupled agricultural support policies is therefore a step in the right direction.

How much has the world actually moved to decoupled payments? What has been the net effect on resource use, efficiency, and trade distortions? In chapter 5, “Experience with Decoupling Agricultural Support,” John Baffes and Harry de Gorter evaluate the impact of decoupling measures in industrial and developing countries. From 1986–88 to 2000–02, domestic subsidies paid to farmers in OECD countries increased 60 percent. Output and input subsidies (“large” impact programs) increased moderately compared with the substantial increases in payments linked to land area or number of animals, decoupled historical entitlements, or input use and overall farm income (“smaller” impact programs). Payments based on area planted and number of animals have increased most, followed by historical entitlements.

The United States took the first step toward decoupling in the 1985 Farm Bill, which shifted the base of support from current yields to historical yields. In the 1996 Farm Bill the United States replaced deficiency payments with decoupled support. The European Union partially replaced intervention prices with decoupled payments following the Common Agricultural Policy reform of 1992. Mexico replaced price supports with decoupled payments in 1994 with the introduction of the National Program for Direct Assistance to Rural Areas (Programa de Apoyos Directos al Campo [PROCAMPO]). More recently, Turkey replaced some price supports and input subsidies with decoupled payments. In addition to broad decoupling attempts, there have been numerous one-time buyouts, including New Zealand’s exit grant in 1984, the buyout of Canada’s grain transportation subsidy in 1995, and the buyout of the U.S. peanut marketing quota under the 2002 Farm Bill.

Experience designing and implementing these programs has been mixed. Although decoupling has led to a reallocation of resources in agriculture, its effects have been modest. In many cases, overpro-

duction has continued. One-time buyouts have had greater success in eliminating very inefficient arrangements, but their range is limited. More attention should be given to constraints on input use, government credibility, other support programs, and time limits. Unless these aspects are addressed, decoupled support is likely to have the same kinds of undesirable effects as other subsidy programs. Payments should be time limited, provided only to help producers adjust. The European Union and Turkey have no time limit. The United States had (at least implicitly) a time limit in the 1996 Farm Bill but violated it three years later. Mexico has a time limit and has complied with it so far.

The coexistence of coupled and decoupled programs means that incentives to overproduce remain. In the four decoupling cases examined, all either left some coupled support programs in place or added new ones. Eligibility rules need to be fixed and clearly defined. Updating the bases for payment of subsidies and adding crops results in a government credibility problem and reduces the effect of the decoupling programs.

Food Product and Safety Standards

With the decline in traditional barriers to trade, attention has focused on the potential role of standards as technical barriers to trade. Zero-duty access means little if countries cannot meet product standards. Chapter 6, “Agro-Food Exports from Developing Countries: The Challenges of Standards,” by Steven M. Jaffee and Spencer Henson, provides an overview of the impact of food safety and agricultural health standards on developing country agro-food exports. Standards have become an increasingly important influence on the international competitiveness of developing countries, especially in the context of high-value agricultural and food products. Some well-established sectors that are highly export dependent have been hurt by new and stricter standards. In several cases, developing countries have faced restrictions because of their inability to meet food safety or agricultural health requirements. At the same time, other developing countries have gained access to high-value markets in industrial countries despite these stricter standards.

The evidence in this chapter suggests a less pessimistic picture for developing countries than that

commonly presented, which sees standards as barriers to developing-country trade. Rising standards accentuate underlying supply chain strengths and weaknesses and thus have different effects on the competitive position of different countries. In this perspective, food safety measures must be viewed within the context of more general capacity constraints.

Much of the impetus for stricter food safety and agricultural health standards is coming from consumer and commercial interests, magnified by advances in technology and new security concerns. Thus prospects are slim for slowing this movement or allowing poorer countries to meet lower standards. Developing countries need to find ways to develop and improve food safety and agricultural health management systems to meet these standards.

A crucial need is for management capacity, not only to comply with the different requirements in different markets but also to demonstrate that compliance has been achieved. While many countries have struggled to meet ever-stricter standards, even some very poor countries have managed to implement the necessary capacity, especially where the private sector is well organized and the public sector supports the efforts of exporters. Many poor countries have successfully entered the demanding seafood and fresh fruit and vegetable markets. Most violations reported at border controls involve failures to meet simple hygiene standards.

There is no single model for all countries striving to meet the challenges posed by standards. Institutional frameworks are required, however, to overcome the problems associated with being poor or small. These can include outgrower¹ programs for smallholder farmers, systems of training and oversight for small and medium-size enterprises established through associations and other groups, and twinning and regional networking for small countries. Such efforts undoubtedly need to be improved and refined, but they offer useful guidance on effective ways to proceed.

The chapter clearly demonstrates the need for developing countries to be proactive when facing new food safety and agricultural health standards. By thinking strategically, countries can program capacity enhancement into wider and longer-term efforts to enhance domestic food safety and agricultural health management systems and export

competitiveness. Failing this, countries face the need for potentially large-scale investments over long periods of time to remedy violations of standards as they arise. In all of this, the public and private sectors need to work together to identify the most efficient and effective ways to develop capacity. Food safety and agricultural health controls must be seen as a collaborative effort in a system that is only as strong as its weakest link.

Welfare Gains from Global Agricultural Reform

Given the magnitude of the distortions in agricultural sectors in all countries, an obvious question concerns the net impact of status quo policies and of global reform. Models of global trade and domestic policy reforms often yield very large welfare gains for both industrial and developing countries. Critics argue that many of the assumptions of these studies are exaggerated and that their results should be treated with caution. In chapter 7, “Global Agricultural Reform: What Is at Stake?” Dominique van der Mensbrugge and John C. Beghin look beyond the estimates of aggregate welfare gains to structural changes that would emerge from multilateral trade liberalization in agricultural and food markets, including cross-regional patterns of output and trade. They address some of the common criticisms of these aggregate models and explore the implications for welfare, trade, output, and value added of changing key modeling assumptions. The real gains often amount to 1 percent or less of base income, whereas the structural changes (resource reallocation) can be greater than 50 percent. The chapter decomposes the impacts of partial reforms both regionally and across instruments to determine the share of the global gains that comes from reform in industrial countries and the share from reform in developing countries. It also examines the extent to which border protection and various forms of domestic support drive global gains.

The second part of the chapter addresses some of the issues raised by critics of trade reform—notably, that the estimated gains for developing countries are too optimistic and that the transitional costs for industrial-country farmers are high and too often ignored. The analysis looks at three assumptions that could influence the level of gains: the consequences of lowering agricultural productivity growth in

developing countries, the impact of constraining output supply response in low-income countries, and the assumptions on the magnitude of trade elasticities. The chapter also examines the impact of lowering the rate of exit of industrial-country farmers, including adjustments to transition.

The results are broadly robust to the range of sensitivity analyses undertaken, but trade elasticities are the most important. Assuming low productivity gains in agriculture in developing countries leads to a reversal in the estimated impact of global liberalization for industrial countries, with an increase in the net food trade surplus. If productivity grows slowly in developing countries, they become much larger importers of food and agricultural products, and trade reform accentuates this tendency. Low-income developing countries experience an increase in net food trade surplus that is much smaller than under the higher productivity assumption. Thus different assumptions about productivity could lead to different conclusions about the direction of food self-sufficiency in the aftermath of reform. Supply constraints do not qualitatively affect the estimated impact of trade reform on agricultural output, although estimated changes tend to be smaller. Higher trade elasticities dampen the adverse terms-of-trade shocks from reforms, leading to larger income gains and higher variations at the country level.

Commodity Studies

Nine chapters analyze the impact on global markets of policies for selected commodity groups. The commodity groups were selected to provide a broad range of policy environments, to deal with different groups of countries, and to show the diversity of gainers and losers.

Sugar Chapter 8, “Sugar: Opportunity for Change,” by Donald O. Mitchell, looks at the sugar market, one of the most distorted markets in the world. The European Union, United States, and Japan together protect sugar at some \$6.4 billion a year, about the value of total developing-country exports. On average, domestic producers in these countries receive more than triple the world price for their output. Among middle-income countries, Mexico, Poland, Turkey, and almost all beet-producing, northern developing countries also provide significant

support to their producers. Thus 80 percent of world production and 60 percent of world trade take place at prices much higher than world prices.

There are pressures on the European Union and the United States to reform their sugar markets because of internal market changes and international commitments already made under NAFTA, the EU Everything but Arms Program, and the Uruguay Round Agreement on Agriculture. Their protectionism is unravelling, another case of border opening forcing domestic policy discipline. Needed reforms could be carried out in conjunction with scheduled reviews of the EU Common Agricultural Policy in 2006 and expiration of the U.S. Farm Bill in 2007, which could provide a target period for getting reforms agreed on and in place. Japan remains a bastion of protectionism, with tariffs, price surcharges, and trade management by state agencies.

Preferential and regional agreements often bar low-cost producers from entering the internal markets covered by the agreements. Quota allocations are concentrated in a few, often high-cost countries, which are generally not the poorest. For example, Mauritius has 38 percent of EU quotas. Thailand, a very low-cost producer, is limited to a 15,000 ton quota in the United States, whereas the Philippines has a quota 10 times larger that often goes unfilled.

Multilateral negotiations provide an opportunity to rationalize the proliferation of preferential agreements, by phasing in multilateral liberalization and allowing markets to allocate access on a competitive basis. Reforms would result in a contraction of output in both industrial countries and beet-producing developing countries. World prices would rise by about 40 percent. The big gainers would be producers in Thailand, Latin America, and southern Africa among developing countries and Australia among industrial countries. Consumers would gain in almost every country, since even competitive producers cover their export losses with higher-price domestic sales. The losses to quota holders, many of them very high-cost producers, would be much smaller because of the world price increases.

Dairy In chapter 9, “Dairy: World Markets and the Implications of Policy Reform for Developing Countries,” Tom Cox and Yong Zhu analyze the dairy market, which is the most distorted of all the

markets examined in this volume. The sector is distorted by a complex system of domestic and international trade barriers, including surplus disposal in the Quad countries (Canada, Japan, the European Union, and the United States) and the Republic of Korea. OECD support totaled \$41 billion in 2002, and tariff rates are above 30 percent worldwide. The Quad countries and Australia and New Zealand dominate the export market. Although Australia and New Zealand are competitive exporters, with few distortions, dairy interest groups in the Quad countries are strongly entrenched. Prospects for policy reforms appear dim, especially in the European Union and Japan. Domestic price discrimination schemes in the European Union, the United States, and Canada rely on the ability to close borders, suggesting that the emphasis in the Doha Round negotiations should be on commitments to lower border protection.

Despite high distortion levels, the global dairy market is dynamic, with much growth potential. Dairy consumption in Asia has been expanding dramatically with income growth, urbanization, and the westernization of diets. Innovations in food processing also contribute to the sector's dynamism, with new value-added opportunities such as dry whey and lactose, for which trade barriers are low. Innovations have also expanded trade opportunities for traditional milk products such as milk powder and butter-oil, which are transformed into final products after importation to circumvent protection on finished products. Concentration and vertical integration in industrial countries are also important sources of economies in procurement, processing, and logistics and lead to high levels of foreign direct investment. Global reforms could raise prices by 20–40 percent and lead to production declines in the Quad countries and increases in Australia, New Zealand, Latin America, and India.

Rice In chapter 10, “Rice: Global Trade, Protectionist Policies, and the Impact of Trade Liberalization,” Eric J. Wailes analyzes rice, the most important food grain in the world. On average, consumers in low-income food-deficit countries get 28 percent of their calories from rice. Production and consumption are concentrated in Asia (China, India, and Indonesia). The rice market is a mature market, with static demand in industrial countries and growing demand in developing economies

driven by demographics rather than by income growth. Prospects for growth in trade therefore rely on policy reforms.

Tariff and related border protection are very high, averaging about 40 percent globally and rising to 200 percent in some markets. Support in OECD countries is almost \$25 billion. Support in Japan, expressed in ad valorem form, is a staggering 700 percent of world prices. Tariff escalation is systematically practiced (from paddy to milled rice) in many countries. In the European Union the tariff on milled rice (80 percent) is prohibitive, except for small preferential import quotas granted to a few countries. Tariff escalation is also prevalent in Central and South America. Mexico has a 10 percent tariff on paddy rice and a 20 percent tariff on brown and milled rice. This pattern of protection depresses world prices for milled high-quality long grain rice relative to prices for brown and rough rice, creating economic hardship for millers of high-quality long grain rice in exporting countries such as Thailand, the United States, and Vietnam.

Net rice consumers would be negatively affected by trade liberalization if the new consumer price rises with reform. Prices would rise wherever current ad valorem tariffs are lower than the potential world price increase following liberalization, such as in the Middle East.

Wheat In chapter 11, “Wheat: The Global Market, Policies, and Priorities,” Donald O. Mitchell and Myles Mielke analyze the world wheat market, which has become less distorted since 1990. A number of countries have undertaken reforms unilaterally or as a consequence of commitments under the Uruguay Round. The European Union and the United States have ended their export subsidies, but other surplus-disposal programs, such as nonemergency food aid and export credits, are still in place. Most importing countries have reduced their tariffs on wheat or allowed duty-free imports from regional trading partners and thus benefit from low world market prices. A few importers, such as Japan, continue with high levels of protection that raise internal prices to more than five times world market levels.

While wheat trade has become less distorted, tariff escalation is high. Tariffs on flour are well above those on wheat, and tariffs on bakery and

pasta products are even higher. Consequently, trade in wheat products is confined largely to free-trade areas such as the European Union and NAFTA.

A major concern for wheat-importing countries is the lack of assured access to wheat markets in periods of high prices. In the 1970s the United States imposed an export embargo on wheat, to protect domestic consumers from high world prices. In 1995 the European Union imposed an export tax on wheat for a similar reason. Such actions increase international price volatility and reinforce the desire for self-sufficiency in importing countries. Importing countries need to pressure exporting countries for assured market access as part of the Doha Round of multilateral trade negotiations.

OECD countries still provide substantial support to wheat producers, but the production effects have been partially offset by land set-aside programs and by the way support is provided. Global liberalization is expected to raise world wheat prices by a relatively small amount (5–10 percent) because of large surplus capacity in major exporters. This capacity could return to production following policy reforms, preventing prices from rising significantly. Big gainers would be Argentina, Kazakhstan, and Ukraine, with some output reduction by the United States and the European Union. Further reforms of the global wheat market should focus on ensuring access to wheat exports during price spikes, reducing producer support in OECD countries, reducing protection in the few remaining highly protected markets, and reducing tariff escalation on wheat products.

Groundnuts In chapter 12, “Groundnuts: Policies, Global Trade Dynamics, and the Impact of Trade Liberalization,” Ndiame Diop, John C. Beghin, and Mirvat Sewadeh analyze groundnuts, an important product for many low-income producers and consumers. There are two main groundnut markets, one for edible groundnuts (confectionary, processed butter and paste) and one for crushed groundnuts (oil and cakes) used in livestock feed. The peanut oil market is declining because of the availability of lower-priced vegetable oils, but the confectionary nuts market is expanding. African producers have considerable potential in this sector, but supply volatility, inefficient processing, and uneven quality are challenges to their becoming dependable exporters of confectionary products.

The policy dimension of international groundnut markets is a challenge largely for developing countries. India and, to a lesser extent, China are large, protected groundnut markets, and low-cost producers in Argentina and Sub-Saharan Africa are potential gainers from global reforms. The United States, which once strongly supported the peanut sector, eliminated major distortions with a one-time buyout in 2002, but a now-redundant tariff of 160 percent remains. Liberalization would make India and China net importers of some peanut products. With trade liberalization, the bulk of world welfare gains would occur with groundnuts rather than with derivative products, although liberalization of the value-added markets (groundnut oil and meal) would lead to larger welfare gains and higher rural incomes for African countries (\$72 million in aggregate welfare and \$124 million in farm profits). Consumers in OECD countries would pay higher prices for these products, but there would be little effect on poverty. Consumers in India and southern China, who pay for heavy and inefficient government intervention in the sector, would be better off.

The major challenge in successful negotiations to open groundnut product markets is to overcome entrenched interests in India and China. Except for the United States, industrial countries have limited interests at stake in these markets and should not be an impediment to reform. Moreover, U.S. producers would benefit from the higher world prices that would prevail under free trade, helping to offset reductions in U.S. tariffs.

Fruits and vegetables In chapter 13, “Fruits and Vegetables: Global Trade and Competition in Fresh and Processed Products,” Ndiame Diop and Steven M. Jaffe look at another dynamic product group, which now constitutes almost 21 percent of developing-country exports. World imports of fruits and vegetables grew 2–3 percent a year during the 1990s, a slowdown over the 1980s. Low population and income growth in the European Union, where product markets were already mature and saturated, had much to do with the slowdown. Adverse price movements for fresh and processed products from the mid-1990s onward also contributed to the deceleration. Trade growth remained robust among NAFTA countries, for exports to high-income Asian countries and for trade between developing countries.

Although many developing-country suppliers have entered this market, relatively few countries have achieved significant success on a sustained basis. This is a highly competitive and rapidly changing industry, with multiple influences on competitiveness.

Unlike the case in many other agricultural sectors, production and export subsidies are not pervasive in horticulture. Border controls are the main instrument of protection. The United States, the European Union, and Japan use a range of complex tools, including highly dispersed ad valorem tariffs, specific duties, seasonal tariffs, tariff escalation, and preferential access with tariff rate quotas. Many industrial countries have set up complex systems of preferential access to provide a few privileged trade partners with favorable entry without undermining protection of domestic producers. The product coverage of preferential access schemes is wide, but entry is often limited by quotas for “sensitive products.” Tariff escalation is widespread, although its extent varies significantly across countries.

Further tariff liberalization would be needed to reduce tariff peaks, especially in the European Union and the Republic of Korea. Changes in domestic support will not affect the sector significantly because most countries have low levels of direct government intervention. Reductions in tariffs and other import restrictions are thus critical for determining the impact of trade agreements and policies on world horticultural trade. Still, as experience suggests, the main beneficiaries of such reforms will be a limited number of middle-income countries that have developed strong production, post-harvest processing, logistical marketing, and sanitary and phytosanitary management systems and that continue to attract new investment. With few exceptions, low-income countries still face substantial supply-side challenges in taking advantage of existing and future international market opportunities.

Cotton In chapter 14, “Cotton: Market Setting and Policies,” John Baffes explores cotton, a market with minimal border restrictions but considerable domestic support. Cotton production is an important source of rural income and exports in Africa and Central Asia. In 1998–99, cotton accounted for more than 30 percent of merchandise exports in Benin, Burkina Faso, Chad, Mali, Togo, and Uzbekistan, and 15 percent in Tajikistan. Cotton faces intense competition from synthetic fibers,

especially following the technological improvements of the early 1970s that brought prices down to those for cotton. Since 1975 polyester and cotton have traded at roughly the same price levels. Cotton’s share of total fiber consumption has dropped from 68 percent in 1960 to 40 percent in 2001–02. Cotton demand has grown at the same rate as population growth during the last 40 years.

The major challenge for cotton is to cut back support policies, particularly in the United States, which subsidized cotton at a cost of \$3.7 billion in 2001–02, and the European Union (Greece and Spain), which provided subsidies of almost \$1 billion. These are extremely high subsidies in a market in which production was valued at \$20 billion in 2001–02. At this level of support, U.S. and EU cotton producers receive prices that are 87 percent and 160 percent, respectively, above world prices. China has also supported its cotton sector. Many cotton-producing developing countries have reacted to low world prices by introducing offsetting support. Support in Brazil, Egypt, India, Mexico, and Turkey totaled \$0.6 billion in 2001–02.

Cotton support policies reduce world prices by some 10–15 percent, cutting the incomes of poor farmers in West Africa and Central and South Asia. Cotton has important implications for poverty reduction in these countries as it is one of the most important sources of cash in these economies. If support were removed completely, Africa would increase production by 6 percent and Uzbekistan by 4 percent, while the United States would reduce production by 7 percent and the European Union by 10 percent.

Seafood In chapter 15, “Seafood: Trade Liberalization and Impacts on Sustainability,” Cathy A. Roheim looks beyond global trade policies to examine the complementary issues of management and sustainability. Seafood is one of the most traded food commodities in the world. Developing countries account for more than 50 percent of the global fish product trade by value. This trade now constitutes 20 percent of their agricultural and food processing exports, more than tropical beverages (coffee, cocoa, and tea), nuts and spices, cotton, and sugar and confectionary combined. Aquaculture has expanded to 30 percent of world seafood production. The most valuable component of the seafood trade is shrimp, with total world trade of more than \$10 billion in 2000.

Capture fisheries still supply the majority of fish production, but 60 percent of the world's fisheries are either overused or fully used. Even with the establishment of the 200-mile exclusive economic zones in 1977, which brought a third of the world's oceans under the jurisdiction of coastal states, most fisheries management plans have not achieved their stated goal of maintaining sustainable fisheries.

Most seafood product trade flows from developing countries to industrial countries. In several developing countries, fish products are a primary source of export earnings. Trade barriers may have significant potential for harm for these countries. Among trade barriers, tariffs are low compared with the effects of sanitary and phytosanitary measures and, increasingly, countervailing and antidumping measures. Many industrial countries heavily subsidize their fishing sector, including buying access to the waters of developing nations. These subsidies and other fishing arrangements mean that industrial countries capture a significant portion of fishing value added. Many developing countries do not have management policies or lack the resources to enforce them, with the result that capture fisheries are being depleted. Increased aquaculture production in developing countries, particularly of shrimp, has had adverse environmental impacts along coastal areas.

The effects of trade liberalization will differ by country, depending on domestic policies for fisheries and aquaculture. If trade liberalization in fish products leads to higher prices for exporters, fish catches may decline as already overstressed resources are pushed past sustainable levels. This in turn will lead to a decline in food security and, ultimately, to unsustainable international seafood markets.

Coffee In chapter 16, "Coffee: Market Setting and Policies," John Baffes, Bryan Lewin, and Panos Varangis look at a traditional tropical product, one that does not have major trade distortions. Tariffs are low, and there is only slight tariff escalation on processed coffee. Yet despite this, coffee prices have been highly volatile. This volatility reflects mainly weather-related conditions (and to a lesser extent currency fluctuations) in Brazil.

Coffee consumption has been stagnant (common among primary commodities), in part because of competition from the soft drink indus-

try. Except in Brazil, Colombia, Ethiopia, and Mexico, little coffee is consumed in developing countries. Efforts to expand coffee consumption in developing countries are likely to come at the expense of tea, a commodity produced by the same countries that produce coffee.

Although a few large producers produce most of the coffee, several small countries depend heavily on coffee. In Burundi, Ethiopia, and Rwanda, coffee accounts for more than half of total merchandise exports. The coffee market had supply controls in place longer than any other important commodity. In addition to stabilizing (and perhaps raising) prices in the short term, these agreements brought new entrants into the coffee market. With the exception of Colombia, Ethiopia, and, to a lesser degree, Côte d'Ivoire, Kenya, and Tanzania, the marketing regimes in coffee-producing countries are liberal. Some 6–8 percent of coffee output is traded outside of traditional marketing channels, as organic, fair-trade, gourmet specialty, and eco-friendly products. These new markets provide higher prices to producers.

During the 1990s, Brazil expanded its coffee production to areas less subject to frost, reducing weather-induced supply disruptions. Vietnam emerged as the dominant supplier of robusta coffee, currently producing as much coffee as Colombia. New technologies on the demand side have enabled roasters to be more flexible in switching quickly among coffee types, implying that premiums for certain types of coffee cannot be retained for long. Thus the so-called coffee crisis is more a case of new entry, faster technological change, and so far, little exit.

Note

1. *Outgrower* refers to farmers producing for a larger processor under some contractual arrangement and technical advice or oversight.

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