

## **Agriculture, Trade Reform, and the Doha Agenda**

*Kym Anderson and Will Martin*

Agriculture is yet again causing contention in international trade negotiations. It caused long delays to the Uruguay Round in the late 1980s and 1990s, and it is again proving to be the major stumbling block in the World Trade Organization's (WTO) Doha Round of multilateral trade negotiations (formally known as the Doha Development Agenda, or DDA). For example, it contributed substantially to the failure of the September 2003 Trade Ministerial Meeting in Cancún to reach agreement on how to proceed with the DDA, after which another nine months passed before a consensus was reached on the Doha work program, otherwise referred to as the July Framework Agreement (WTO 2004).

It is ironic that agricultural policy is so contentious, given its small and declining importance in the global economy. The sector's share of global gross domestic product (GDP) has fallen from around one-tenth in the 1960s to little more than one-thirtieth today. In developed countries the sector accounts for only 1.8 percent of GDP and only a little more of full-time equivalent employment. Mirroring that decline, agriculture's share of global merchandise trade has fallen by more than half since 1970, dropping from 22 percent to 9 percent. For developing countries, agriculture's importance in exports has fallen even more rapidly, from 42 to 11 percent (figure 1.1).

<<Figure 1.1 near here>

### <<A>>So Why All the Fuss over Agriculture?<<end>>

Because policies affecting this declining sector are so politically sensitive, there are always self-interested groups suggesting it be sidelined in trade negotiations—as indeed it has been in numerous subglobal preferential trading agreements, and was in the General Agreement on Tariffs and Trade (GATT) prior to the Uruguay Round.<sup>1</sup> To do so, however, would be a major disservice to many of the world's poorest people, namely,

those in farm households in developing countries. It is precisely *because* agricultural earnings are so important to a large number of developing countries that they are targeting the highly protective farm policies of a few wealthy countries in the WTO negotiations: Better access to rich countries' markets for their farm produce is a high priority for these developing countries.<sup>2</sup>

Some developing countries have been granted greater access to developed-country markets for a selection of products under various preferential agreements. Examples are European Union (EU) provisions for former colonies in the Africa, Caribbean, and Pacific (ACP) program and more recently for least developed countries under the Everything But Arms (EBA) agreement. Likewise, the United States has its Africa Growth and Opportunity Act (AGOA) and Caribbean Basin Initiative (CBI). These schemes reduce demands from preference-receiving countries for farm policy reform in developed countries, but they exacerbate the concerns of other countries excluded from such programs and thereby made worse off through declining terms of trade. Such schemes may even be worsening, rather than improving, aggregate global and even developing-country welfare.

Apart from that, many in developing countries say they did not get a good deal out of the Uruguay Round. From a mercantilistic view, the evidence seems to support that claim: Finger and Winters (2002) report that the average depth of tariff cut by developing countries was substantially greater than that agreed to by high-income countries.<sup>3</sup> As well, developing countries had to take on costly commitments such as those embodied in the SPS (Sanitary and Phytosanitary) and TRIPS (Trade-Related Aspects of Intellectual Property Rights) agreements (Finger and Schuler 2001). These countries therefore have been insisting in the Doha Round on significantly more market access commitments from developed countries before they contemplate opening their own markets further.

Market access opportunities for developing-countries exporters, and especially for poor producers in those countries, are to be found much more in agriculture (and to a lesser extent in textiles and clothing) than in other sectors. A glance at table 1.1 shows that even after taking preferences into account, developing-country exporters face an average tariff of 15.6 percent for agriculture and food, and 9.3 percent for textiles and clothing, compared with just 2.5 percent for other manufactures. The average tariff on

agricultural goods imported by developing countries themselves is high too, suggesting even more reason why attention should focus on that sector (along with textiles) in the multilateral reform process embodied in the DDA.

<<**Table 1.1 near here**>>

If agriculture were to be ignored in the Doha negotiations, there is the risk that agricultural protection would start rising again. That is what happened throughout the course of industrial development in Europe and Northeast Asia (Anderson and others 1986; Lindert 1991). It was only with the establishment of the WTO, in 1995, that agricultural trade was brought under multilateral disciplines through the Uruguay Round Agreement on Agriculture (URAA).

The URAA was ambitious in scope, converting all agricultural protection to tariffs, and limiting increases in virtually all tariffs through tariff bindings. Unfortunately, the process of converting nontariff barriers into tariffs (inelegantly termed “tariffication”) provided numerous opportunities for backsliding that greatly reduced the effectiveness of the agreed disciplines (Hathaway and Ingco 1996). In developing countries, the option for “ceiling bindings” allowed countries to set their bindings at high levels, frequently unrelated to the previously prevailing levels of protection. Hence agricultural import tariffs are still very high in both rich and poor countries, with bound rates half again as high as most-favored-nation (MFN) applied rates (table 1.2).

<**Table 1.2 near here**>>

As well, agricultural producers in some countries are supported by export subsidies (still tolerated within the WTO only for agriculture) and by domestic support measures. Together with tariffs and other barriers to agricultural imports, these measures support farm incomes and encourage agricultural output to varying extents. The market price support component also typically raises domestic consumer prices of farm products. Figure 1.2 shows the value and the percentage of total farm receipts from these support policy measures, called the producer support estimate, or PSE, by the secretariat of the Organisation for Economic Co-operation and Development (OECD).<sup>4</sup> For OECD members as a group, the PSE was almost the same in 2001–3 as in 1986–88, at about \$240 billion a year. But because of growth in the sector, the value of the PSE as a percentage of total farm receipts (inclusive of support) fell from 37 to 31 percent. Figure

1.2 also shows a significant increase in the proportion of that support coming from programs that are somewhat “decoupled” from current output, such as payments based on area cropped, number of livestock, or some historical reference period; these decoupled programs have less effect on current production than do measures that raise product prices

<<Figure 1.2 near here>>

Agricultural protection levels remain very high in these OECD countries, especially considering that the 1986–88 period had historically low international food prices and hence above-trend PSEs. And, as figure 1.3 shows, the PSEs have fallen least in the most-protective OECD countries. By contrast, tariff protection for OECD manufacturing has fallen over the past 60 years from above 30 percent nominal rate of protection (a level similar to that for OECD agriculture today) to only about 3 percent now. This gap in tariff protection means far more resources have been retained in agricultural production in developed countries—and hence fewer in developing countries—than would have been the case if protection had been phased down in both sectors simultaneously.

<<Figure 1.3 near here>>

Nonetheless, the achievements of the Uruguay Round Agreement on Agriculture provide some scope for optimism about what might be achieved through the WTO as part of the Doha Development Agenda and beyond. The current Doha Round has the advantage over the Uruguay Round of beginning from a framework of rules and disciplines already agreed to in the Uruguay Round. In particular, that framework has the three clearly identified “pillars” of market access, export subsidies, and domestic support on which to focus. True, it took more than three years to agree on a framework for the current negotiations, reached at the end of July 2004 (WTO 2004), but that July Framework Agreement is likely to guide the negotiations for some time. It therefore provides a strong basis for undertaking ex ante analysis of various options potentially available to WTO members during the Doha negotiations.

**<<A>>What Differentiates This Book from Others?<<end>>**

This study builds on numerous recent analyses of the Doha Development Agenda and agricultural trade, including five very helpful books that appeared in 2004. One, edited by Aksoy and Beghin (2004), provides details of trends in global agricultural markets and policies, especially as they affect nine commodities of interest to developing countries. Another, edited by Ingco and Winters (2004), includes a wide range of analyses based on papers revised following a conference held just before the aborted WTO Trade Ministerial Meeting in Seattle in 1999. The third, edited by Ingco and Nash (2004), provides a follow-up to the broad global perspective of the Ingco and Winters volume: it explores a wide range of key issues and options in agricultural trade reform from a developing-country perspective. The fourth, edited by Anania, Bohman, Carter, and McCalla (2004), is a comprehensive, tenth-anniversary retrospective on the Uruguay Round Agreement on Agriculture and numerous unilateral trade and subsidy reforms in developed, transition, and developing economies. And the fifth, edited by Jank (2004), focuses on implications for Latin America.

All of those studies were completed well before Doha Round negotiators reached the July Framework Agreement in the early hours of August 1, 2004. The studies also preceded the public release in December 2004 of a new version of Purdue University's Global Trade Analysis Project (GTAP) database. That Version 6.05 database is a major improvement over the previous version for several reasons. One is that it includes global trade and protection data as of 2001, whereas the previous database had data for 1997. Another is that the new protection data include, for the first time, bound as well as applied tariffs, nonreciprocal as well as reciprocal tariff preferences, the ad valorem equivalents of specific tariffs (which are plentiful in the agricultural tariff schedules of many high-income, high-protection countries), and the effects of tariff rate quotas. In addition, key trade policy reforms occurring irrespective of the outcome of the Doha negotiations have been added, namely, the commitments associated with accession to WTO by such economies as China and Taiwan (China), the implementation of the last of the Uruguay Round commitments (including the abolition of quotas on trade in textiles and clothing at the end of 2004, and final agricultural tariff reductions in developing

countries), and the enlargement of the European Union from 15 to 25 members in April 2004.

Hence what distinguishes the current volume from others is that its ex ante analysis focuses on the core aspects of the July Framework Agreement from the viewpoint of agriculture and developing countries but also takes account of what might happen to nonagricultural market access and the other negotiating areas. Furthermore, the analysis does so in an integrated way by using the new GTAP Version 6.05 database, which we have amended to account for key protection changes agreed to before 2005 and related global economywide models.<sup>5</sup>

### **<<A>>What Questions Are Addressed in This Study?<<end>>**

This volume is the result of an intense program of integrated research undertaken during the latter half of 2004 and early 2005 by a complementary set of well-informed scholars from four continents. Among the core questions this volume addresses are the following:

- What is at stake in this Doha Round, in terms of efficiency gains forgone by the various regions of the world because of current tariffs and agricultural subsidies?
- How much are each of the three pillars of agricultural distortion (market access, export subsidies, and domestic support) contributing to those welfare losses, compared with nonagricultural trade barriers?
- How might the demands for special and differential treatment (SDT) for developing and least developed countries be met without compromising the potential gains from trade expansion for those economies?
- What are the consequences of alternative formulas for cutting bound agricultural tariffs for applied tariffs, trade, national income, and income distribution?
- In the case of products whose imports are subject to tariff rate quotas, what are the tradeoffs between reducing out-of-quota tariffs and expanding the quota volumes or the in-quota tariffs?
- Since MFN trade liberalization by developed countries erodes the value of tariff preferences, to what extent would this erosion reduce the developing countries' interest in agricultural and other trade reform?

- What should be done about agricultural export subsidies, including those implicit in export credits, food aid, and arrangements for state trading enterprises?
- Based on recent policy changes in key countries, how might domestic farm support measures be better disciplined in the WTO?
- If domestic support commitments made in the Uruguay Round were reduced, what would be the effects on the actual domestic support levels currently provided to farmers?
- In particular, how might reductions in cotton subsidies help developing-country farmers in West Africa and elsewhere?
- What are the effects of expanding market access for nonagricultural products at the same time as access is expanded for farm goods under a Doha agreement?
- For which developing countries would farm output and employment fall as a result of such a Doha agreement?
- Taking a broad brush, and in the light of past experience and our understanding of the political economy of agricultural policies in rich and poor countries, how might reform of those policies best be advanced during the Doha negotiations?
- What would be the overall market and welfare consequences by 2015, for various countries and regions as well as globally, of the alternative Doha reform commitments considered in addressing each of the above questions?

### <<A>>What Have We Learned?<<end>>

In answering these questions, the following are among the key messages that emerge.

*The potential gains from further global trade reform are huge.* Global gains from trade reforms implemented after 2004 are estimated to be large even if dynamic gains and gains from economies of scale and increased competition are ignored.<sup>6</sup> Freeing all merchandise trade and eliminating agricultural subsidies are estimated to boost global welfare by nearly \$300 billion a year by 2015. Additional gains would come from whatever productivity effects that reform would generate.

*Developing countries could gain disproportionately from further global trade reform.* The developing countries would enjoy 45 percent of the global gain from completely freeing all merchandise trade (table 1.3a), well above their current share of

one-fifth of global GDP. Their welfare would increase by 1.2 percent, compared with an increase of just 0.6 percent for developed countries. The developing countries gain a higher share than developed countries partly because they have relatively high tariffs themselves (so they would reap substantial efficiency gains from reforming their own protection) and partly because their exporters face much higher farm and textile tariffs in developed-country markets than do exporters from developed countries themselves (see table 1.1)—notwithstanding nonreciprocal tariff preferences for many developing countries.

<<table 1.3 near here>>

*Benefits could be as much from South-South as from South-North trade reform.* Trade reform by developing countries is as important economically to those countries as is reform by developed countries, including from agricultural liberalization (see table 1.3b). Hence choosing to delay their own reforms, or reforming less than developed countries and thereby holding back South-South trade growth, could substantially reduce the potential gains to developing countries.

*Agriculture is where cuts are needed most.* To realize the potential gain from opening up goods markets, by far the greatest cuts in bound tariffs and subsidies are required in agriculture. That is because of the very high rates of assistance in the agricultural sector relative to other sectors. Food and agricultural policies are responsible for more than three-fifths of the global gain forgone because of merchandise trade distortions (first column of table 1.3a)—even though agriculture and food processing account for less than 10 percent of world trade and less than 4 percent of global GDP. Agriculture is just as important for the welfare of developing countries as it is for the world as a whole: their gains from global agricultural liberalization represent almost two-thirds of their total potential gains, which compares with gains of one-quarter from textiles and clothing and one-tenth from other merchandise liberalization (table 1.3b).

*Subsidy disciplines are important, but increased market access in agriculture is crucial.* Much of the attention in the negotiations has focused on the abolition of export subsidies. The framework agreement envisages their complete abolition and only partial reform of agricultural tariffs. However, extremely high applied tariffs on farm products relative to nonfarm products are the major reason that food and agricultural policies

contribute 63 percent of the welfare cost of current merchandise trade distortions. Subsidies to farm production and exports are only minor additional contributors: 4 and 1 percentage points respectively, compared with 58 points attributable to agricultural tariffs.<sup>7</sup> This is even truer for developing countries than for developed ones (compare first two columns of table 1.4), where Panagariya (2004) has pointed to the risk of some developing countries losing from abolition of export subsidies. Disciplining those domestic subsidies and phasing out export subsidies is nonetheless very important.

**<<table 1.4>>**

*Large cuts in domestic support commitments are needed to erase binding overhang.* Commitments on domestic support for farmers are currently so much higher than actual support levels that the 20 percent cut in the total bound aggregate measure of support (AMS) promised in the July Framework Agreement as an early installment would require almost no actual support reductions. Indeed, a cut as large as 75 percent for those with the most domestic support is needed to get some action, and even then only four industrial countries would be required to make significant cuts from 2001 actual levels of domestic support: the United States (by 28 percent), the European Union (by 16 percent), Norway (by 18 percent), and Australia (by 10 percent). Reforms by the EU and Australia since 2001 have already delivered cuts that would satisfy those requirements, so only the United States and Norway would need to make further adjustments.

*Large cuts in bound rates also are needed to erase binding overhang in agricultural tariffs.* In turning from potential gains to what might be achievable under a partial reform package, it is clear the devil is going to be in the details. Table 1.2 shows a substantial binding overhang in agricultural tariffs: the average bound rate in developed countries is almost twice as high as the average applied rate; in developing countries, the ratio is even greater. Thus large reductions in bound rates are needed before *any* improvement is made in market access. To bring the global average actual agricultural tariff down by one-third, bound rates would have to be reduced for developed countries by at least 45 percent, and by as much as 75 percent for the highest tariffs, under a tiered formula.

*A complex tiered formula may be little better than a proportional tariff cut.*  
Because of the large binding overhang, a tiered formula for cutting agricultural tariffs

would not generate much more global welfare—and no more welfare for developing countries as a group—than a proportional cut of the same average size (scenarios 1 and 4 of table 1.5).<sup>8</sup> This suggests there may be little value in arguing over the finer details of a complex tiered formula just for the sake of reducing tariff escalation. Instead, a simple tariff cap of, say, 100, or even 200, percent could achieve many of the same objectives.

**<Table 1.5 near here>>**

*Even large cuts in bound tariffs will accomplish little if exceptions are allowed for sensitive products.* If members succumb to the political temptation to put limits on tariff cuts for the most sensitive farm products, most of the prospective gains from Doha could evaporate. Allowing for just 2 percent of agricultural tariff lines to be designated as sensitive products (4 percent in developing countries, to incorporate their demand for exceptional treatment also for special food products), and subjecting them to just a 15 percent cut, would shrink welfare gains from agricultural reform by three-quarters. Allowing those exceptions but capping bound tariff rates at 200 percent would offset some of the losses from the exemptions, shrinking the welfare gain by only one-third (scenarios 5 and 6 in table 1.5).

*TRQ expansion could provide additional market access.* Only a small number of farm products are subject to tariff rate quotas, but they protect more than half of all production in developed countries and 44 percent of their agricultural imports (de Gorter and Kliauga 2005). Bringing down (out-of-quota) MFN bound tariffs for those products could be supplemented by lowering their in-quota tariff or expanding the size of the quota itself. While doing so might increase the aggregate rent attached to those quotas and hence resistance to eventually removing them, the binding overhang is so large that quota expansion may be the only way to increase market access for some TRQ products in the Doha Round—especially for products designated as sensitive and hence subject to smaller cuts in their bound tariffs.

*High binding overhang in developing countries means they would have to make few cuts.* Given the high binding overhang of developing countries, even with their high tariffs—and even if tiered formulas are used to cut highest bindings the most—relatively few of them would have to cut their actual tariffs and subsidies at all. That is even more the case if some special products are subjected to smaller cuts, and if developing

countries exercise their right, as laid out in the July Framework Agreement, to undertake smaller cuts (zero in the case of least developed countries) than developed countries. Politically, high binding overhang makes it easier for developing and least developed countries to offer big cuts on bound rates, but it also means the benefits to them are smaller than if they had a smaller binding overhang.

*Cuts in cotton subsidies would help cotton-exporting developing countries.* The removal of cotton subsidies (which have raised producer prices by well over 50 percent in the United States and the EU) would raise the export price of cotton (although not equally across all exporters because of product differentiation). If those subsidies were removed as part of freeing all merchandise trade, that export price is estimated to rise 8 percent for Brazil and less for Sub-Saharan Africa on average. However, the value of cotton exports from Sub-Saharan Africa would be 75 percent greater than it is now, and the share of all developing countries in global cotton exports would be 85 percent instead of 56 percent in 2015, vindicating those countries' efforts to ensure cotton subsidies receive specific attention in the Doha negotiations.

*Expanding nonagricultural market access would add substantially to the gains from agricultural reform.* A 50 percent cut in nonagricultural tariffs by developed countries (33 percent by developing countries and zero by least-developed countries) added to the tiered formula or proportional cut to agricultural tariffs would double the gains from Doha for developing countries. It would also account for about one-third of the nearly \$300 billion potential welfare gain from full liberalization. Adding services reform would of course boost that welfare gain even more

*Adding nonagricultural tariff reform to agricultural reform helps to balance the exchange of "concessions."* A reduction of nonagricultural tariffs also would help balance the exchange of concessions between developed and developing countries: developing-country exports to high-income countries would then be \$62 billion greater, compared with the estimated \$55 billion increase in high-income-country exports to developing countries. With only agricultural reform, high-income country bilateral export growth to developing countries would be little more than half the export growth in the opposite direction (table 1.6).

<<Table 1.6 near here>>

*Most developing countries gain in our Doha scenarios, and all would if they participated more fully in the reforms.* Our simulations of alternative scenarios for possible outcomes of the Doha negotiations show that middle-income countries certainly stand to gain, but so too would poorer developing countries so long as they do not exercise their claims to special and differential treatment in the form of lesser requirements to reform. An important part of this result comes from the increases in market access—on a nondiscriminatory basis—by other developing countries.

*Preference erosion may be less of an issue than commonly assumed.* Some least developed countries in Sub-Saharan Africa and elsewhere appear to be slight losers in our Doha simulations when developed countries cut their tariffs and these poor countries choose not to reform at all. Our simulations overstate the benefits of tariff preferences for least developed countries, however, since they ignore the trade-dampening effect of complex rules of origin and the grabbing of much of the rents by developed-country importers. Even if least developed countries were to be losers after correcting for those realities, it remains true that preference-receiving countries could always be compensated for preference erosion through increased aid at relatively small cost to current preference providers—and in the process, other developing countries currently hurt by preferences for least developed countries would enjoy greater access to the markets of reforming developed countries.

*Farm output and employment would grow in developing countries under Doha.* Although a few low-income countries lose slightly under our Doha scenarios, in all the developing countries and regions shown, the levels of output and employment on farms expand. It is only in the most protected developed countries of Western Europe, Northeast Asia, and the United States that output and employment levels would fall, and then only by small amounts, contrary to the predictions of scaremongers who claim agriculture would be decimated in reforming countries (table 1.7). Even if merchandise trade were completely liberalized, the developed countries' share of the world's primary agricultural GDP by 2015 would be only slightly lower, at 25 percent instead of 30 percent. (Their share of global agricultural exports would be diminished considerably more, however: from 53 to 38 percent).

<<table 1.7 near here>>

*Poverty could be reduced under Doha.* Under the full merchandise trade liberalization scenario, extreme poverty---those earning no more than \$1 a day---would drop by 32 million in developing countries in 2015 relative to the baseline level of 622 million, a reduction of 5 percent. The majority of the poor by 2015 are projected to be in Sub-Saharan Africa, where the reduction would be 6 percent.<sup>9</sup> Under the Doha scenarios reported in table 1.8, the poverty impacts are far more modest. The number of poor living on \$1 a day or less would fall by 2.5 million in the case of the core Doha Scenario 7 (of which 0.5 million are in Sub-Saharan Africa) and by 6.3 million in the case of Doha Scenario 8 (of which 2.2 million are in Sub-Saharan Africa). This corresponds to the relatively modest ambitions of the merchandise trade reforms as captured in these Doha scenarios. If only agriculture was reformed (Doha Scenario 1), there would be much less poverty alleviation globally and none at all in Sub-Saharan Africa. This shows the importance for poverty of including manufactured products in the Doha negotiations.

<<Table 1.8 near here>>

#### <<A>>Key Policy Implications

Among the numerous policy implications that are drawn out by the various chapter authors, the following are worth highlighting.

*Prospective gains are too large not to find the political will needed to negotiate agricultural trade reform under Doha.* With gains on the order of \$300 billion a year at stake from implementing the July Framework Agreement, even if no reforms are forthcoming in services, and even if the counterfactual would be the status quo rather than protectionist backsliding, the political will needs to be found to bring the round to a successful conclusion, and the sooner the better. Multilateral cuts in MFN bindings are also helpful because they can lock in previous unilateral trade liberalizations that otherwise would remain unbound and hence vulnerable to backsliding. Implementation of the framework agreement can be used as an opportunity to multilateralize previously agreed preferential trade agreements and thereby reduce the risk of trade diversion from those bilateral or regional arrangements.

*Because developed countries have the most dollars to gain, as well as the most capacity and influence, they need to show leadership at the WTO.* The large developed countries cannot generate a successful agreement on their own, nor can the Doha Round succeed without a major push by the key traders. Their capacity to assist poorer economies could hardly manifest itself more clearly than in encouraging global economic integration through trade reform, and in particular by opening their markets to the items of greatest importance to poorer countries, namely, farm (and textile) products. The more that is done, the more developing countries will be encouraged to reciprocate by opening their own markets—accelerating South-South trade in addition to South-North trade.

*Abolishing agricultural export subsidies is the obvious first step.* That would bring agriculture into line with the basic GATT rule against such measures, and in the process help to limit the extent to which governments encourage agricultural production by other means (since a ban on export subsidies would raise the cost of surplus disposal). China has already committed not to use export subsidies, and other developing countries can also find more efficient ways of stabilizing their domestic food markets than by dumping surpluses abroad.

*Domestic support bindings must be cut substantially to remove binding overhang.* In so doing, the highest-subsidizing countries, namely, the EU, the United States, and Norway, need to reduce their support, not just for the sake of their own economies but also to encourage developing countries to reciprocate by opening their markets as a quid pro quo. An initial installment of a 20 percent cut is a good start, but nothing more than a start, toward eliminating that overhang.<sup>10</sup>

*Even more important, agricultural tariff bindings must be cut deeply to remove binding overhang and provide some genuine market opening.* Getting rid of the tariff binding overhang that resulted from the “dirty tariffication” of the Uruguay Round should be the first priority, but more than that is needed if market access is to expand. If a choice has to be made, reducing MFN bound tariffs in general would be preferable to raising tariff rate quotas, because the latter help only those lucky enough to obtain quotas and crowd out nonquota holders. (Because they run counter to the nondiscrimination spirit of the GATT, tariff rate quotas deserve the same fate as textile quotas, which were abolished at the end of 2004.) Exemptions for even just a few sensitive and special products would

be undesirable because they would greatly reduce the gains from reform and would tend to divert resources into, instead of away from, enterprises in which countries have their least comparative advantage. If it turns out to be politically impossible not to allow some exemptions, it would be crucial to impose a cap so that any sensitive or special product with a bound tariff in excess of, say, 100 percent had to reduce it to that cap rate.

*The tiered formula for cutting farm tariffs could be traded for a proportional cut with a cap.* Should it prove to be too difficult or time-consuming to negotiate a complex, tiered tariff-reduction formula, our simulation results suggest that a proportional cut of nearly the same average magnitude plus a cap to bring down the very highest bound tariffs would be just as effective in raising welfare.

*Expanding nonagricultural market access at the same time that agriculture trade is reformed is essential.* A balanced exchange of concessions is impossible without adding other sectors, and those sectors need to include more than textiles and clothing (which also benefit developing countries disproportionately), even though textiles and clothing are the other highly distorted sector. With other merchandise included, the trade expansion would be four times greater for both rich and poor countries—and poverty in low-income countries would be reduced considerably more.

*South-South concessions also are needed, especially for developing countries, which means reconsidering the opportunity for developing countries to liberalize less.* Because developing countries are trading so much more with each other than they once did, they are the major beneficiaries of reforms within their own regions. Upper-middle-income countries might consider giving least developed countries duty free access to their markets (mirroring the recent initiatives of developed countries) but, rather than take such discriminatory action, it would be better for them to reduce their MFN tariffs. Even least developed countries should consider reducing their tariff binding overhang, since doing so in the context of Doha gives them more scope to demand “concessions” (or compensation for preference erosion or other contributors to terms of trade deterioration) from richer countries without requiring them to cut their own *applied* tariffs very much.

**<<A>>What the Subsequent Chapters Contribute<<end>>**

These findings and policy implications are described more fully in the following chapters. A brief description of key aspects of each chapter's analysis is given here.

***What Is at Stake***

In chapter 2 Tom Hertel and Roman Keeney examine the potential implications of trade reform. They estimate that eliminating all agricultural subsidies and moving to complete free trade in goods and services would boost global welfare by \$151 billion a year.<sup>11</sup> Developing countries would enjoy a disproportionately large share of those gains at 23 percent, well above their current share of 16 percent of global GDP. The reason is twofold: they have relatively high tariffs themselves and, much more important, their exporters face much higher tariffs in high-income markets than do exporters from the high-income countries themselves.

What are the policy measures contributing most to those potential gains from full trade liberalization? First, although agriculture contributes only 4 percent to global GDP, policies for that sector are responsible for two-thirds of the global cost of merchandise protection. Almost four-fifths of that cost is attributable to high-income country policies, with only one-fifth due to farm policies of developing countries. Not surprisingly, therefore, it is high-income countries that gain the most from reform of farm programs, but developing countries also gain a sizable portion—removing restrictions on agricultural trade accounts for more than half the total gains to developing countries from removing all merchandise trade restrictions globally.

Second, textiles and clothing liberalization would contribute only one-fifth as much to global welfare as agricultural reform. Their contribution to welfare in developing countries would be considerably greater though, equal to nearly three-quarters that from farm trade reform and accounting for most of developing-country gain from nonfarm merchandise reform.

What happens when services trade reform is included? Estimates are much more difficult to obtain for this category, especially when foreign direct investment (commercial presence) and temporary labor migration (movement of natural persons) is potentially involved. Two important points about services can be drawn from Hertel and Keeney's results. One is that even with just a small subset of services included, the

potential gains from trade reform are enhanced considerably, accounting for 44 percent of the total gains from goods and services reforms. That exceeds agriculture's 37 percent share of the total (with other merchandise accounting for just 19 percent). Second, reform of developing-country services policies contributes more than one-fifth of the gain from reform of services trade, again well above their 16 percent share of global GDP. So even though the bulk of the gain from services trade reform goes to high-income countries, developing countries would do well to embrace, rather than oppose, their inclusion in the Doha round.

Chapter 2 also exposes the relative importance of the three separate pillars of agricultural support programs: import market access inhibited by tariffs and tariff rate quotas, domestic support measures, and export subsidies. According to Hertel and Keeney's results, it is market access measures that deliver by far the greatest prospects for gains from agricultural reform—10 times the combined contribution of domestic support and export subsidies. Farm export subsidies are now of relatively minor importance globally, thanks to reductions following the Uruguay Round. But developing countries as a group would lose a little from the total elimination of export subsidies because some are net food-importing countries. Agricultural-exporting developing countries, in contrast, would gain from the removal of developed-country subsidies.

### *<<B>>Special and Differential Treatment for Developing Countries<<end>>*

In chapter 3, Tim Josling first considers the institutional arrangements for special and differential treatment in the GATT/WTO. He points out that the concept of SDT is well-established, and that the July Framework Agreement refers to it in several situations, including provisions for longer implementation periods, lower reduction commitments, consistency with the provisions of the Ministerial Decision on Least Developed and Net Food Importing Countries, and the provisions on food and livelihood security in the agricultural annex to the framework.

The key question for developing countries, however, is how they should seek to use these opportunities for SDT. Since the framework does not give quantitative magnitudes, these must be negotiated, and the results will depend on where, and to what extent, developing countries use their negotiating capital to achieve their objectives.

Josling's key recommendation is that developing countries use an economic approach to evaluate where it is in their interests to push hard to avoid making commitments, and where they should use their negotiating capital to seek broader liberalization commitments from their trading partners. In particular, he suggests that developing countries "sell off" assets that are of declining value—such as preferential access to markets where protection is falling—and seek greater liberalization in areas, such as agriculture, textiles, and the movement of labor, that promise longer-term gains.

Josling asks whether SDT can be meaningful when developing countries are self-designated and whether self-designation should continue. He concludes that there is little likelihood of changing this criterion, but considers the potential feasibility of Hoekman's (2005a, 2005b) suggestion that countries might be allowed to opt out of some provisions based on objective development-oriented criteria.

In market access, the framework envisages developing countries having to make smaller tariff reductions. Josling notes that developing countries tend to have much higher binding overhang than the industrial countries in agriculture and asks whether developing countries might offer to reduce this overhang as a way to ensure larger reductions in applied tariffs in the industrial countries. The framework also envisages that developing countries will have more flexible treatment on special products. Here, Josling argues that developing countries will face some major choices. Attempts to seek greater coverage of these products are likely to intensify industrial country demands for greater flexibility for their own sensitive products.

Under domestic support, Josling argues that developing countries should avoid spending negotiating capital on longer implementation periods and lower reduction commitments, since virtually no developing countries will need to undertake reduction commitments. Inclusion of some specific measures, such as some credit subsidies, in the so-called Green Box (measures not subject to discipline) might be worthwhile. He questions, however, whether establishing a new specific Development Box would be worth a substantial amount of negotiating capital given that most such measures are already in the set of allowed measures in the Green Box.

**<<B>Agricultural Market Access Formulas<<end>>**

In chapter 4 Sébastien Jean, David Laborde, and Will Martin examine the potential impact of the framework's tiered formula approach to increasing market access. They note that this approach is more ambitious in a critical way than the preceding reform proposals in that it requires proportionately greater reductions in higher tariffs. The formula set out in the framework is very general, however, and so considerable effort is likely to be needed to convert it into specific proposals.

The fundamental notion of a tiered formula with higher cuts in higher tariffs raises important questions. Simply having higher proportional cuts in higher tiers would create discontinuities, with some tariffs being reduced by more than slightly lower tariffs. Such an effect could potentially create sharp political resistance from affected groups. Jean, Laborde, and Martin highlight this problem and point to a potential solution, which involves increasing the marginal tariff-cutting rate.

Any meaningful analysis of a nonlinear tiered formula requires detailed information on tariffs, including the effects of specific and other non-ad-valorem tariffs; information on applied tariff rates and on the levels of the bindings; the effects of tariff preferences; and the use of tariff rate quotas. Fortunately, the authors of this paper were able to base their analysis on detailed tariff databases that capture these critical features.

An important feature of the framework is greater flexibility for sensitive products in all countries and for special products in developing countries. Negotiators must choose how many such tariff lines are to be allowed, the extent of flexibility permitted, and the extent of liberalization of these products to be undertaken. Jean, Laborde, and Martin assume that policy makers will use these flexibilities to shelter important products—in the sense that these products involve substantial amounts of trade, and that substantial reductions in applied rates would have been required by application of the formula—and that flexibilities will allow for only modest (15 percent ) cuts in these tariffs. They then consider the implications of allowing 2 percent and 5 percent of tariff lines to be sheltered as sensitive products in the industrial countries, with twice these percentages in developing countries to allow for special products. In the baseline simulations, SDT is incorporated by allowing developing countries to make smaller tariff reductions than industrial countries.

Jean, Laborde, and Martin begin their analysis by examining a tiered formula with higher tariff cuts on higher tariff items. A tiered formula with 75 percent marginal reductions on the highest tariffs in industrial countries and 60 percent in developing countries was found to generate worthwhile increases in market access, with bound rates falling by about half on average worldwide, and applied rates by roughly one-third. The reductions in applied rates required are generally quite modest, however, with only four country groups being required to undertake a reduction in average agricultural tariffs of more than 5 percentage points.

A striking finding of this chapter is the potentially dramatic impact of incorporating flexibility for sensitive and special products. When 2 percent of tariff lines in the industrial countries are given flexibility for sensitive products, and 4 percent in developing countries for sensitive and special products, the average cut worldwide in bound duties falls from 19 percent to 6 percent. The reduction in applied rates falls by a factor of five, from 5.5 percentage points to 1.1 points. Interestingly, raising the share of sensitive products from 2 percent to 5 percent of tariff lines causes a relatively small additional diminution in market access gains—the real damage is done by the first 2 percent.

If, as experience suggests, it proves to be difficult to agree on boundaries for tiers under a tiered formula, then a proportional cut of the type used for manufactures trade in the Kennedy Round would generate large absolute—if not proportional—reductions in higher tariffs. Jean, Laborde, and Martin explore the implications of using such a formula, set to achieve the same proportional reductions in bound tariffs as the tiered formula. They find that this approach brings about rather similar tariff reduction patterns as a tiered formula, except for in the Republic of Korea, where protection is very high and which needs to make smaller reductions under the proportional-cut approach. Adding a tariff cap—even one set at a very high level such as 200 percent—is found to offset much of the lost benefits of the tiered formula of reducing the overall variability of tariffs.

The SDT provisions in the framework reduce the extent to which developing countries have to cut their bound tariff rates. With SDT, they have to cut by 21 percent; without it they would have to cut by 31 percent. The corresponding reductions in their

applied rates are much smaller, however. With SDT, developing-country applied rates would have to decline on average, by 4.3 percent, while without it, the required decline would be 6.9 percent. Given the binding overhang that drives these gaps, a key question for developing-country policy makers is whether the mercantilist “benefits” of smaller tariff reductions justify the resulting loss in the negotiating capital that could be used to demand larger cuts in support in the developed countries.

The market access gains resulting from a tiered formula vary substantially across countries and commodities. The tiered formula used in this chapter would reduce the average applied tariff facing developing countries by 5.2 percent, but it reduces tariffs for China by an extraordinary 14.8 percent. In terms of commodities, the largest gain would be in cereals, for which the average tariff worldwide would fall by more than half, from 41.2 percent to 19.2 percent. Substantial gains in market access would also be expected for sugar, meat, and dairy products.

### ***Tariff Rate Quotas***

Harry de Gorter and Erika Kliauga analyze the key issue of tariff rate quotas in chapter 5. These measures involve a lower, in-quota tariff for a limited volume of imports of a particular product, and a higher, out-of-quota tariff on additional imports of the same product. The chapter shows that TRQs have been implemented by 43 WTO members, on about 20 percent of their tariffs, for a total of 1,425 tariff lines.

However, TRQ products are subject to extraordinarily high tariffs—an average out-of-quota tariff of 115 percent. These products account for an estimated 50 percent of the agricultural production of developed countries and 43 percent of their imports, so clearly TRQs have major implications for developing-country market access. For some products, the importance of TRQs is overwhelming: 95 percent of OECD rice production is protected by TRQ regimes, and 85 percent of OECD wheat imports are regulated using TRQs.

The most effective approach to expanding market access under a TRQ regime is critically determined by whether the level of imports is being determined by the in-quota tariff, the quota, or the out-of-quota tariff. De Gorter and Kliauga show that approximately one-third of the number of quotas are filled, which translates to an trade-

weighted average fill rate of 72 percent. Roughly 60 percent of TRQ imports, valued at \$25 billion, are subject to a regime in which the out-of-quota tariff determines the level of imports, with a further 20 percent of imports coming under a regime where imports exceed the quota, but are not charged the out-of-quota tariff.

This chapter provides a glimpse into the complexity of the TRQ regime. The three most important means of administering TRQs are the use of applied tariffs, licenses on demand; and first-come, first-served. These forms of administration cover almost 80 percent of total TRQs, and 46 percent of TRQ imports. Yet none of these approaches to quota allocation provides a rational basis for determining who should obtain scarce and valuable rights to import. Only the less widely used forms of allocation, such as historical imports (8.2 percent of TRQs); quota auctioning (4.6 percent); and allocation to favored groups such as producers or state trading enterprises (2.1 percent) have this critical feature.

Despite the importance of out-of-quota tariffs in determining volumes of imports under TRQ regimes, a simulation exercise reported by de Gorter and Kliauga suggests that quota expansion cannot be totally dismissed as a form of market access expansion. Using an elasticity of demand similar to that used in the general equilibrium model of chapter 12, the authors found that a 50 percent increase in TRQ quota levels would generate a 14.5 percent increase in the volume of imports of these goods, while a 35 percent reduction in applied out-of-quota tariffs would result in a 52 percent increase in import volume. Given the complexity and nontransparency of the quota allocation regimes, and the fact that in-quota tariffs are not currently subject to WTO disciplines, there are grounds for concern about how effectively an agreement to expand quotas would be translated into actual import expansion.

### ***<<B>>Preference Erosion for Developing Countries<<end>>***

*Antoine Bouët, Lionel Fontagné, and Sébastien Jean* examine the implications of tariff preferences in chapter 6. Their study builds on the major data collection effort undertaken at the Centre d'Etudes Prospectives et d'Informations Internationales and the International Trade Commission. The authors note the large and rapidly growing deviations from the fundamental principle of nondiscrimination contained in Article I of

the GATT—primarily as a result of preferential trade agreements, but also through expansion of nonreciprocal preferential arrangements such as Everything But Arms for least developed countries.

They examine the implications of tariff cuts for erosion of preferences. This analysis confirms the widely reported finding that the impact of liberalization on preference margins is large for only a handful of countries, including The Gambia, Saint Lucia, Malawi, and Burkina Faso. They find that the extent of preference erosion is barely affected by whether the tariff cut is undertaken using a tiered formula or a proportional cut.

Simulation analysis concludes that the inclusion of preferences does change the estimated impact of liberalization, but only to a small extent. The chapter concludes that the current methodology for including tariff preferences in the database overstates their impact because it ignores the costs associated with using preferences—especially the costs of proving compliance and of meeting rules of origin .

### **<<B>>Agricultural Export Subsidies<<end>>**

As Bernard Hoekman and Patrick Messerlin make clear in chapter 7, farm export subsidies are inconsistent with GATT rules and for that reason alone deserve to be eliminated. The empirical analysis shows that they are in any case now only a small part of agricultural support programs—even when implicit subsidies in the form of food aid and export credits are included. Their elimination would harm a few food-importing and aid-dependent developing countries, but the poor in those countries can be assisted in far more efficient ways than through these measures. A not overly optimistic scenario for the Doha Round involves a phasing out of most explicit and implicit forms of farm export subsidies over the next decade or so.

This chapter shows that the information in WTO export subsidy notifications is extremely dated and incomplete, presented on a product basis that varies between countries, and frequently inconsistent with national-level data. Clearly, the quality of these data needs to be improved if export subsidies are to be adequately monitored. This information, and national-level data, show substantial variation in export subsidy rates between countries, with the EU by far the dominant user of export subsidies. There is also

a great deal of variation between commodities, with some commodities such as dairy products being subject to export subsidy rates of more than 100 percent in the EU, while other products, such as wine, receive extremely limited subsidies. There are substantial variations in export subsidy rates over time, highlighting the frequent use of these measures to support domestic prices that are insulated from movements in world prices.

Hoekman and Messerlin also examine estimates of export support provided through other measures subject to negotiation, such as export credits and support to state trading enterprises. While the data are weak, the authors conclude that these measures currently appear to be of little significance relative to explicit export subsidies.

**<B>Agricultural Domestic Support Disciplines<<end>>**

Chad Hart and John Beghin discuss the structure and measurement of the domestic support limits. They point out that the market price support (MPS) element of the aggregate measure of support (AMS) is only loosely related to distorting support, being measured as the difference between an administered domestic price and an historically fixed external reference price. They also show that the importance of this form of support varies considerably from country to country, contributing only 40 percent of domestic support in the United States in recent years, compared with 70 percent in Japan and the EU.

The MPS also double-counts protection provided by administered prices, since such protection must be supported by a tariff or export subsidy if it is to be sustainable. Worse, from the viewpoint of enforcing disciplines, the MPS is subject to abuse. Policies can be cosmetically reformed to eliminate the current MPS without substantively changing protection policies or reducing the limits on AMS. A country can eliminate the formal, administered price without changing the support policies used to distort it away from world prices. For countries where a large fraction of support is provided through MPS, this provides a great deal of overhang, enabling limits to be cut without requiring reductions in actual support.

**<B>Reducing AMS Bindings<<end>>**

In chapter 9, Hans Jensen and Henrik Zobbe ask what AMS reductions are likely to be required, given the current rules on domestic support and current commitments. They use data collected from country notifications to assess the implications of reform. They find that the ability to abolish notified domestic support by moving away from administered domestic support prices creates an enormous amount of “space” for cuts in domestic support in those countries where MPS makes up a large share of total support. For example, in industrial countries with substantial (over 20 percent) domestic support, even a 75 percent cut in the AMS requires reductions in actual domestic support in only a small number of industrial countries. And since some have already reformed to more than that extent since 2001, only the United States and Norway seem likely to have to reduce their actual domestic supports.

**<B>*The Cotton Initiative*<<end>>**

In chapter 10 Dan Sumner points out that the Cotton Initiative in the Doha Agenda was placed at the center of the negotiations by four small African nations. The remarkable prominence given this issue reflects several issues, including the increased role of developing countries in the WTO, the importance of cotton exports to a number of small African countries, and the unimportance of preferential market access for this commodity, which is supported primarily through domestic support measures. The initiative proposes gradual elimination of cotton subsidies, as well as compensation in the meantime for the damage they continue to do during the reform process. Reform of the trade-related aspects of U.S. cotton policies, in particular, is likely to be necessary, either as part of the Cotton Initiative or in response to the successful Brazilian dispute settlement challenge to these policies. The compensation elements of the Cotton Initiative could provide worthwhile benefits to the affected countries.

**<B>*Holograms and Ghosts in Reforming Farm Policies*<<end>>**

In chapter 11, David Orden and Eugenio Diaz-Bonilla explore some innovative approaches that governments might use to advance the cause of reform in the face of the powerful domestic interests likely to oppose it. They note that a major theme of recent reform in industrial countries has been the replacement of distorting support with cash-

out measures that aim to reduce distortions to production and consumption decisions. They contrast this with a buyout approach that eliminates recurrent support in return for an up-front lump payment, and they examine the generally favorable experience with cash-out measures in the U.S. peanut and tobacco programs. The authors note that WTO commitments could provide a commitment mechanism to ensure that abolition of recurrent distortions is truly permanent.

For developing countries, the authors examine the changes in approaches to policy reform in the period since World War II, beginning with the initial, strong emphasis on industrialization, which frequently involved taxation of agriculture. They note that this pattern changed substantially, with a move toward technological innovation and outward orientation in the 1970s, an emphasis on structural adjustment in the 1980s, and an increased emphasis on targeted poverty alleviation in the 1990s. In the WTO, they note considerable diversity among the positions of developing countries, with some pushing for agricultural reform while others are taking a defensive stance. They conclude that the best approach for development involves a neutral trade and macroeconomic framework, backed by significant nondistortionary interventions and investments needed to overcome market failures and attack poverty problems.

***<B>Some Prospective Overall Doha Packages: Estimating Their Consequences<<end>>***

In the final chapter, Kym Anderson, Will Martin, and Dominique van der Mensbrugge bring together the evidence from earlier chapters into a synthesis designed to assess the potential impacts of a Doha Round agreement on trade, welfare, income distribution, and poverty. The analysis uses the World Bank's LINKAGE model to assess the impacts of cuts in tariffs, agricultural domestic support, and agricultural export subsidies, and liberalization of manufactures, as well as potential gains from the trade facilitation elements of the Doha agreement. The study finds that gains from reform can be huge in dollar terms and that agricultural reforms can contribute more than 60 percent of the total benefits of global goods trade reforms. Various scenarios investigate the effects of different possible modalities, including allowing for exceptional treatment of some

sensitive and special farm products, the use of a proportional-cut approach, and incorporation of a tariff cap.

The authors find that developing countries would gain disproportionately from global trade reform, and would also enjoy some poverty alleviation—and that the benefits would be as much from South-South trade reform as from reform in industrial countries. In terms of farm policy, a key finding is that large cuts in both agricultural tariffs and domestic support commitments are required to reduce the binding overhang and contribute to expansion of market access and trade. The authors also find that adding nonagricultural market access is vital to ensuring that a balanced package is obtained. The benefits of even a very aggressive tariff-cutting formula for agriculture would be greatly diminished, however, by an agreement allowing a small percentage of tariff lines to be given lenient treatment on the grounds of their sensitive or special product status.

What also emerges from that modeling analysis is that developing countries would not *have* to reform very much under Doha, because of the large gaps between their tariff bindings and the applied rates. That is even truer if they exercise their right (as laid out in the July Framework Agreement) to undertake smaller tariff cuts than developed countries. In that case, they would gain little in terms of improved efficiency of national resource use. Yet, as Panagariya (2004) and others have warned, reform under Doha could mean that the terms of trade deteriorate for a nontrivial number of low-income countries—some because they would lose tariff preferences on their exports; others because they are net food importers and so would face higher prices for their imports of food. To realize more of their potential gains from trade, developing and least developed countries would need to engage more fully in the Doha reform process, and perhaps also commit to additional unilateral trade (and complementary domestic) reforms as well as invest more in trade facilitation. High-income countries could encourage them to do so by being willing to open up their own markets to more developing-country exports and by providing more targeted aid.

To that end, a new proposal has been put forward to reward developing-country commitments to greater trade reform with an expansion of trade-facilitating aid. The rewards would be provided by a major expansion of the current Integrated Framework, which is operated by a consortium of international agencies for least developed countries

(Hoekman 2005a, 2005b). This may well provide an attractive path for developing countries seeking to trade their way out of poverty, not least because linking aid to greater trade reform would help offset the tendency for an expanded aid flow to cause a real exchange rate appreciation (Commission for Africa 2005, 296–97). As well, it is potentially a far more efficient way for developed countries to assist people in low-income countries than the current systems of tariff preferences.

In conclusion, the July Framework Agreement does not guarantee major gains from the Doha Development Agenda. Even if an agreement is ultimately reached, it may be very modest. How modest depends on, among other things, the nature of the agricultural tariff-cutting formula, the size of the cuts, the extent to which exceptions for sensitive and special products are allowed, whether a tariff cap is introduced, and the extent to which special and differential treatment is invoked by developing countries in terms of their market access commitments. What is clear is that major gains are possible only if the political will can be mustered to reform protectionist policies—especially in agriculture.

#### <<A>>Endnotes<<end>

1. GATT rules were intended, in principle, to cover all trade in goods. In practice, however, trade in agricultural products was largely excluded from the GATT rules as a consequence of a number of exceptions. Details are to be found in Josling, Tangermann, and Warley (1996) and in Anderson and Josling (2005).

2. According to the United Nations' Food and Agriculture Organization (FAO), 54 percent of the economically active population in developing countries is engaged in agriculture, which is nearly five times larger than the sector's measured GDP share (FAO 2004, table A4). While some of that difference in shares is due to underreporting of subsistence consumption, the gap nonetheless implies that on average these people are considerably less productive and hence poorer than those employed outside agriculture.

3. Generally throughout this volume we use the term *high-income economies* to include the developed countries, the new Central European members of the EU, and the four Asian “tiger” economies of Hong Kong (China), Republic of Korea, Singapore, and

Taiwan (China). The term *developing countries* generally excludes these latter four (and includes other economies in transition). However, in modeling tariff cuts in Doha scenarios, we treat these four Asian tiger economies the same as other developing economies because they have self-nominated to retain that status in the WTO (because it may bestow certain benefits including lesser obligations to cut tariffs).

4. Until recently the PSE referred to the producer subsidy equivalent. For more about the concept and its history, see Legg (2003).

5. This analysis is vastly more sophisticated than the ex ante analyses undertaken for the Uruguay Round. At that time there were very few economywide global models, so analysts relied primarily on partial equilibrium models of world food markets (see, for example, World Bank 1986, Goldin and Knudsen 1990, and Tyers and Anderson 1992). Moreover, estimates of protection rates were somewhat cruder and less complete, and analysts grossly overestimated the gains because they did not anticipate that tariffification would be so “dirty” in the sense of creating large wedges between bound tariff rates and MFN applied tariff rates, nor did they have reliable estimates of the tariff preferences enjoyed by developing countries or the ad valorem equivalent of specific and compound tariffs. Some of these limitations also applied to ex post analyses of the Uruguay Round (see, for example, Martin and Winters 1996).

6. The evidence is that trade reform in general is also good for economic growth and, partly because of that, for poverty alleviation (Dollar and Kraay 2004; Winters 2004; Winters, McCulloch; McKay 2004).

7. In our initial empirical analysis, we also included crude estimates of implicit forms of farm export subsidization through such venues as food aid, export credits, or state trading enterprises, but even that was not enough to raise that export subsidy share above 1 percent. The finding that tariffs distort much more than subsidies is not surprising when one recalls that subsidies involve government outlays that are scrutinized annually in the budget process, whereas import tariffs tend to *raise* government revenue.

8. Scenarios 2 and 3 of chapter 12 are not shown in this chapter.

9. The approach here has been to take the change in the average per capita consumption of the poor, apply an estimated income-to-poverty elasticity, and assess the effects on the poverty headcount index. We have done this by calculating the change in

the real wage of unskilled workers and deflating it by a food/clothing consumer price index, which is more relevant for the poor than the total price index. That real wage grows, over all developing countries, by 3.6 percent, or more than four times the overall average income increase. We are assuming that the change in unskilled wages is fully passed through to households. Also, while the model closure has the loss in tariff revenues replaced by a change in direct household taxation, the poverty calculation assumes—realistically for many developing countries---that these tax increases affect only skilled workers and high-income households. While these simple calculations are not a substitute for more-detailed individual country case study analysis using detailed household surveys as in, for example, Hertel and Winters (2005), they are able to give a broad regionwide indication of the poverty impact.

10. As Francois and Martin (2004) have shown, any binding cut is useful for the long run even if it brings no immediate cut in applied rates.

11. This is considerably below the estimate reported in Anderson and others (2001), based on the GTAP Version 5.4 database for 1997, despite the inclusion of liberalization of commercial services in the results presented here from Version 6.05 for 2001. The reasons for the differences include the reductions in global protection between 1997 and 2001, the inclusion of preferences in the latest dataset, and structural changes in the global economy.

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