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Trade Policy Analyses

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On May 26, 2005 the Cordell Hull Institute held a Roundtable Meeting on further liberalization in agricultural trade and the prospects for trade-inducing reforms in the 2007 U.S. Farm Bill.

The meeting was held in the Washington offices of Hogan & Hartson, attorneys at law, located in the I.M. Pei designed Columbia Square Building (pictured here).

Opposite is the paper **Kym Anderson** (above) presented at the meeting.

About the Author

Dr **Kym Anderson** is the Lead Economist (Trade Policy), World Bank, Washington, DC, on leave from the University of Adelaide, where he has been Professor of Economics since 1984 and,

NEXT U.S. FARM BILL…

Developing Countries and Liberalizing Farm Trade

Kym Anderson and William Martin

AGRICULTURE is yet again a bone of contention in international trade negotiations. The struggle over agriculture caused long delays in the Uruguay Round negotiations of 1986-94 and it is proving to be the major problem in the World Trade Organization's Doha Round negotiations (informally known as the Doha Development Agenda). It contributed substantially to the failure of the WTO Ministerial Conference in Cancún in September 2003 to reach agreement on how to proceed with the Doha Round negotiations. After that, it took another nine months before a consensus was reached in the "July Package" of framework agreements, which were not intended to include modalities.[1]

Why All the Fuss over Agriculture?

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 more than halved over the past three decades, dropping from 22 to 9 percent. For developing countries its importance has fallen even more rapidly, from 42 to 11 percent (see Figure 1).

Since policies affecting this declining sector are so sensitive politically, there are always self-interested groups suggesting it should be sidelined in trade negotiations – as, indeed, it has been in numerous sub-global preferential trade agreements and was in successive rounds of multilateral trade negotiations under the General Agreement on Tariffs and Trade (GATT) prior to the Uruguay Round deliberations.[2] Today the groups with that inclination include not just farmers in the highly protecting

until recently, was the Director of the Centre for International Economic Studies. In 1990-92, he was at the GATT Secretariat; and since then he has served on several WTO dispute-settlement panels and five of his recent monographs on WTO matters deal with China, Laos, Nepal, Papua New Guinea and Vietnam.

About the Meeting

The meeting was chaired by **Robert L. Thompson** Gardner Professor of Agricultural Policy, University of Illinois

Besides **Kym Anderson** speakers included **Charles J.(Joe) O'Mara** Chairman, Agricultural Policy Advisory Committee on Trade, USDA and USTR, and President, O'Mara & Associates, international trade consultants, Russell Lamb Managing Associate, Economic Research Department, Nathan Associates Inc., development consultants

Discussion was initiated by **Jean-Francois Boittin** Minister-Counselor for Economic and Commercial Affairs, Embassy of France as well as **Gary Blumenthal** President, World Perspectives Inc., agricultural trade consultants and **Robert Young** Chief Economist, American Farm Bureau Federation, all of Washington, DC

countries and net food importing developing countries but also those food exporters receiving preferential access to those markets, including holders of tariff-rate quotas, members of regional trade agreements and parties to non-reciprocal preference agreements, among them the least-developed countries. Sidelining agriculture in the Doha Round negotiations, however, would do 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 the highly protective farm policies of a few wealthy countries – entailing production and export subsidies as well as import tariffs – are being targeted by them in the WTO negotiations. Better access to rich countries' markets for their farm produce, and less unfair competition in third-country markets, are high priorities for them.[3]

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

Apart from that, many in developing countries believe they did not get a good deal out of the Uruguay Round agreement. From a mercantilistic point of view, the evidence seems to support that claim. Michael Finger and Alan Winters report that the average depth of tariff cuts by developing countries was substantially greater than that agreed by high-income countries.[4] In addition, developing countries had to take on costly commitments, such as those embodied in the WTO Sanitary and Phyto-sanitary Agreement (SPS) and the WTO Agreement on Trade-related Aspects of Intellectual Property Rights.[5] They are therefore determined in the Doha Round negotiations that they get significantly more market-access commitments from developed countries before they contemplate opening their own markets further.

Greater market access for the developing countries' exporters, and especially for poor producers in those countries, is to be found in agriculture (and to a lesser extent in textiles and clothing). This can be seen from a glance at Table 1. It shows that developing-country exporters face an average tariff (even after taking account

of tariff preferences) of 16 percent for agriculture and food and 9 percent for textiles and clothing, compared with just 2.5 percent for other manufactures. The average tariff on agricultural goods is high not just in high-income countries but also in developing countries, suggesting even more reason why attention should focus on that sector, along with textiles, in the multilateral reform process.[6]

If agriculture were to be ignored in the Doha Round negotiations, there is a risk that agricultural protection would start rising again, for that is what happened throughout the course of industrial development in Europe and Northeast Asia.[7] It was only through the eighth and last GATT round, which led to the establishment of the World Trade Organization, that agricultural trade was brought under multilateral disciplines via the WTO Agreement on Agriculture.

That WTO Agreement on Agriculture 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 non-tariff barriers into tariffs (inelegantly termed "tariffication") was reversed to some extent in the last-minute Blair House agreement between the European Union and the United States, when tariff-rate quotas were introduced, ostensibly aimed at assuring small suppliers of a degree of market access (whereas they in fact protect over half the farm production of developed countries). In addition, tariffication provided numerous opportunities for backsliding that greatly reduced the effectiveness of the agreed disciplines,[8] for in developing countries the option for "ceiling bindings" allowed countries to set their bindings at high levels, frequently unrelated to previously prevailing levels of protection. Hence tariffs on agricultural imports are still very high in both rich and poor countries, with bound rates half as high again as most-favored-nation (MFN) applied rates (Table 2). With tariff-rate quotas, out-of-quota tariffs have been set at very high levels, often prohibitively high.

Moreover, agricultural producers in some countries are supported by export subsidies (still tolerated in 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 degrees. The market price-support component also typically raises domestic consumer prices of farm products. Figure 2 shows the value and the percentage of total farm receipts from these support measures, called the "producer support estimate" (PSE) by the Organization for Economic Cooperation and Development (OECD).[9] For OECD member countries as a group, the PSE was almost the same in 2001-03 as in 1986-88, at about $240 billion per year. But because of growth in the sector, as a percentage of total farm receipts (inclusive of support) that represents a fall from 37 to 31

percent. Figure 2 also shows that there has been 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, the number of livestock or some historical reference period – although in practice the extent of decoupling may be quite small.

Agricultural protection levels remain very high in these developed countries, especially when it is borne in mind that 1986-88 was a period of historically low international food prices and hence above-trend PSEs. And, as Figure 3 shows, the PSEs have fallen least in the most-protective OECD countries. By contrast, tariff protection afforded to OECD manufacturing has fallen over the past 60 years from a level similar to that for OECD agriculture today (above 30 percent nominal rate of protection) to only one-tenth of that now. This 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 agriculture and manufacturing simultaneously.

Nonetheless, the achievements in the Uruguay Round negotiations, with the WTO Agreement on Agriculture, provide some scope for optimism about what might be achieved as part of the Doha Round negotiations and beyond. The current WTO negotiations have the advantage over the Uruguay Round negotiations of beginning with a framework of rules and disciplines agreed in that previous round. In particular, it 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, one *without* modalities, for the current negotiations, which was reached at the end of July 2004,[10] 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 Round negotiations.

This chapter summarizes our recent study,[11] which builds on numerous analyses of the Doha Round negotiations and agricultural trade, including five very helpful books that appeared in 2004. One edited by Ataman Aksoy and John Beghin[12] provides details of trends in global agricultural markets and policies, especially as they affect nine commodities of interest to developing countries. Another volume, edited by Merlinda Ingco and Alan Winters,[13] includes a wide range of analyses based on papers revised after a conference held just prior to the aborted WTO Ministerial Conference in Seattle in December 1999. The third volume, edited by Dr Ingco and John Nash[14], provides a follow-up to the broad global perspective of the Ingco-Winters volume: it explores a wide range of key issues and options in agricultural trade reform from a developing-country perspective. The fourth volume, edited by Giovanni Anania, Mary Bohman, Colin Carter

and Alex McCalla, is a comprehensive tenth-anniversary retrospective on the WTO Agreement on Agriculture as well as a look ahead, following numerous unilateral trade and subsidy reforms in developed, transition and developing countries.[15] And the fifth volume, edited by Marcos Jank, focuses on implications for Latin America.[16]

All of those 2004 studies were completed well before the July Package of framework agreements was reached in the early hours of August 1, 2004, and before the public release in December 2004 of the new Version 6 database of the Global Trade Analysis Project (GTAP) at Purdue University. That Version 6 database is a major improvement on the previous version for several reasons. One is that it includes global trade and protection data as of 2001 (previously 1997). Another is that protection data are available, for the first time, on bound as well as applied tariffs, non-reciprocal 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 agricultural tariff-rate quotas. In addition, key trade-policy changes at the start of 2005 have been added for our analysis, namely the commitments associated with accession to the WTO by such economies as China and Taiwan (Chinese Taipeh), the implementation of the last of the Uruguay Round commitments (most notably the abolition at the end of 2004 of the remaining half of the quotas on trade in textiles and clothing under the Multi-fiber Arrangement) and the eastward enlargement of the European Union from fifteen to 25 members in May 2004.

What distinguishes the present study from the above 2004 studies and other books with similar titles is that (i) its *ex ante* analysis focuses on the core aspects of the July 2004 framework agreement from the viewpoint of agriculture and developing countries, taking account also of what might happen to non-agricultural market access and the other negotiating areas, and (ii) it does so in an integrated way by using the new GTAP Version 6 database (amended to take into account the key changes in protection up to early 2005) and the latest version of the World Bank's global, economy-wide Linkage model, details of which have been documented by Dominique van der Mensbrugghe.[17] Even so, it needs to be kept in mind that this type of model does not capture all the dynamic gains from trade and so will provide only a lower-bound estimate of those gains. Also, those gains may look small when expressed as a percentage of aggregate national income (as in Tables 3 and 7 below), but the gains from agricultural reform, if expressed as a percentage of just *agricultural* GDP would be more than 20 times larger (since agriculture accounts fo less than 5 pecent of global GDP).

What Questions are Addressed Here?

Among the core questions addressed in this study, following an

intense program of integrated research during the latter half of 2004 by a complementary set of well-informed scholars from four continents, are the following:

- What is at stake in the Doha Round negotiations, in terms of efficiency gains foregone by the various regions of the world because of current tariffs and agricultural subsidies?

- How much are each of the three pillars of agricultural distortions (market access, export subsidies and domestic support) contribute to those welfare losses, compared with non-agricultural trade barriers?

- How might the demands for special-and-differential treatment for developing and least-developed countries be met without compromising the potential gains from trade expansion for those economies?

- What are the consequences, in terms of opening up to imports, of alternative formulas for cutting bound agricultural tariffs?

- In the case of products whose imports are subject to tariff-rate quotas, what are the trade-offs between reducing in-quota or out-of-quota tariffs versus expanding the size of those quotas or the in-quota tariffs?

- To what extent would the erosion of tariff preferences, which necessarily accompanies MFN trade liberalization by developed countries, 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 the 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 system?

- What are the consequences of reducing the domestic-support commitments made in the Uruguay Round agreement, in terms of cuts in 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 difference does it make to expand market access for non-agricultural products (chiefly meaning industrial products, as other primary products have low tariffs) at the same time as for farm goods under a Doha Round agree-

ment?

- Which developing countries would have to reduce their farm output and employment as a result of such a Doha Round 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 Round 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 Round reform commitments considered in addressing each of the above questions?

What Have we Learned?

In addressing the above questions, the following are among the key messages that emerged from our study.

The potential gains from further global trade reform are huge. Global gains from trade reform post-2004 are estimated to be large even if dynamic gains and gains from economies of scale and increased competition are ignored. Freeing all merchandise trade and agricultural subsidies is estimated to boost global welfare by nearly $300 billion per year by 2015 (Table 3), plus whatever productivity effects that reform would generate.[18]

Developing countries could gain disproportionately from further global trade reform. The developing countries (as defined by the WTO) would enjoy 45 percent of the global gain from complete liberalization of all merchandise trade, well above their share 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' higher share is partly because they have relatively high tariffs themselves (so they would reap substantial efficiency gains from reforming their own protection), and partly because their exports are more concentrated in farm and textile products whose tariffs in developed-country markets are exceptionally high (Table 1) – notwithstanding non-reciprocal tariff preferences for many developing countries, which contribute to the losses associated with the terms-of- trade deterioration shown in the middle column of Table 3.

Benefits could be as much from South-South as from South-North trade reform. Trade reform by developing countries is just as important economically to those countries as reform by developed countries, including from agricultural liberalization (Table 4b). Hence choosing to delay their own reforms or

reforming less than developed countries, and thereby holding back South-South trade growth, could reduce substantially the potential gains to developing countries.

Agriculture is where cuts are needed most. To realize the potential gain from opening goods markets, it is in agriculture that by far the greatest cuts in bound tariffs and subsidies are required. This is because of the very high rates of public assistance in that sector relative to other sectors. Food and agricultural policies are responsible for more than three-fifths of the global gain foregone because of merchandise trade distortions (column 1 of Table 4a) – despite the fact that agriculture and food processing account for less than 10 percent of world trade and less than 4 percent of global GDP. From the point of view of welfare of developing countries, agriculture is at least as important 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 just one-quarter from textiles and clothing and one-ninth from other merchandise liberalization (Table 4b).

Subsidy disciplines are important, but increased market access in agriculture is crucial. Extremely high applied tariffs on agricultural products relative to non-farm products are the major reason for food and agricultural policies contributing 63 percent of the welfare cost of distortions of current merchandise trade. Subsidies to farm production and exports are only minor additional contributors to that gain from agricultural policy reform: 5 and 2 percent respectively, compared with 93 percent due to agricultural tariffs.[19] This is even truer for developing countries than for developed ones (compare columns 1 and 2 of Table 5). Disciplining those domestic subsidies and phasing out export subsidies is nonetheless very important, for it would help to prevent re-instrumentation of public assistance, from tariffs to domestic subsidies, and bring agriculture into line with non-farm trade by not using export subsidies.

In developing countries the poor would gain most from multilateral trade reform. The full liberalization of global merchandise trade would raise real factor returns for the poorest households most. This is implied in Table 6, where for developing countries the biggest factor price rise is for farm land, followed by unskilled labor. Since farmers and other low-skilled workers constitute the vast majority of the poor in developing countries, such reform would reduce both inequity and poverty.

Large cuts in domestic-support commitments are needed to erase the binding overhang. In turning from the potential gains from full liberalization to what might be achievable under a Doha Round partial reform package, the devil is going to be in the details. For example, commitments on domestic support are so much higher than actual support levels at present that the 20 percent cut in the total bound AMS promised in the July 2004

frame work agreement as an early installment will require no actual support reductions for any WTO member.

Indeed, a cut as huge as 75 percent for those with the most domestic support is needed to get some action; and even then it would only require cuts in 2001 levels of domestic support for four WTO actors: the United States (by 28 percent), the European Union (by 18 percent), Norway (by 16 percent) and Australia (by 10 percent) – and since 2001 the European Union and Australia have already introduced reforms of that order, so they may not need to do any further cutting under that formula.

Large cuts in bound rates are needed also to erase binding overhang in agricultural tariffs. Table 2 shows there is a substantial binding overhang in agricultural tariffs. The average bound rate in developed countries is almost twice as high as the average applied rate; and in developing countries, the ratio is even greater. Thus large reductions in bound rates are needed before it is possible to bring about *any* improvements in market access. To bring the actual global average agricultural tariff down by one-third, bound rates would have to be reduced for developed countries by at least 45 percent, and up to 75 percent for the highest tariffs, under a tiered formula.

A complex tiered formula may be little better than a proportional tariff cut. It turns out that, because of the large binding overhang, a tiered formula for cutting agricultural tariffs would generate not much more global welfare – and no more welfare for developing countries as a group – than a proportional cut of the same average size (columns 1 and 2 of Tables 7, 8 and 9). 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 essentially the same outcome.

Even large cuts in bound tariffs do little if "sensitive products" are allowed, except if a cap applies. If WTO members succumb to the political temptation to put limits on tariff cuts for the most sensitive farm products, much of the prospective gain from the Doha Round negotiations could evaporate. Even if only 2 percent of HS6 agricultural tariff lines in developed countries are classified as sensitive (and 4 percent in developing countries, to incorporate also their "special products" request), and are thereby subject to just a 15 percent tariff cut (as a substitute for the expansion of tariff-rate quotas mentioned in the July 2004 framework agreement), the welfare gains from global agricultural reform would shrink by three-quarters. If at the same time, however, any product with a bound tariff in excess of 200 percent had to reduce it to that cap rate, the welfare gain would shrink by "only" one-third (columns 3 and 4 of Tables 7, 8 and 9).

Expansion of tariff-rate quotas could provide additional market access. Only a small number of farm products are subject to tariff-rate quotas (TRQs), but they protect over half of all developed countries' production and 44 percent of their agricultural imports.[20] Bringing down those products' (out-of-quota) MFN bound tariff could be supplemented by lowering their in-quota tariff or expanding the size of the quota. While this may increase the aggregate rent attached to those quotas and hence resistance to eventually removing them, the extent of binding overhang is such that quota expansion may be the only way to get increased market access for TRQ products in the Doha Round negotiations – especially if they are among the ones designated as "sensitive" and hence subject to lesser cuts in their bound tariffs.

High binding overhang means most developing countries would have to make few cuts. Given the high binding overhang of developing countries, even with their high tariffs – and even if tiered formulae are used to cut the highest bindings the most – relatively few of them would have to cut their actual tariffs and subsidies at all.[21] That is even truer if "special products" are subjected to smaller cuts and developing countries exercise their right – as laid out in the July 2004 framework agreement – to undertake lesser cuts (zero in the case of least-developed countries) than developed countries. Politically this 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.

Cotton subsidy cuts 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 European Union)[22] 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 price rise is estimated to be 8 percent for Brazil, but less for Sub-Saharan Africa on average. Cotton exports from Sub-Saharan Africa, however, would be a huge 75 percent larger and the share of all developing countries in global 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 Round negotiations.

Expanding industrial market access would add substantially to the gains from agricultural reform. Adding a 50 percent cut to industrial tariffs by developed countries (and 33 percent by developing countries and zero by least-developed countries) to the tiered formula cut to agricultural tariffs would double the gain from the Doha Round negotiations for developing countries (compare Scenarios 1 and 5 in Tables 7, 8 and 9). That would bring the global gain to $96 billion from Doha Round merchandise liberalization, which is a sizable one-third of the potential welfare gain from full liberalization of $287 billion. Adding the reform of

trade in services would of course boost that welfare gain even more.

Adding industrial tariff reform to agricultural reform helps to balance the exchange of "concessions". The agricultural reforms would boost the annual value of world trade in 2015 by less than one-quarter what would happen if industrial tariffs were introduced. The latter's inclusion would also help to balance the exchange of "concessions" in terms of increases in bilateral trade values. In that case developing countries' exports to high-income countries would then be $62 billion, which is close to the $55 billion increase in high-income countries' exports to developing countries. With only agricultural reform, the latter's bilateral trade growth would be little more than half the former's (Table 10).

Most developing countries gain and the rest could if they reform more. Even though much of the developed-country gains from that comprehensive Doha Round scenario go to numerous large developing countries, notably Brazil, Argentina and Other Latin America plus India, Thailand and South Africa, the rest of Sub-Saharan Africa gains too. This is particularly so when developing countries participate as full partners in the negotiations. An important part of this result comes from the increases in market access – on a non-discriminatory basis – by other developing countries.

Preference erosion may be less of an issue than is commonly assumed. Some least-developed countries in Sub-Saharan Africa and elsewhere appear to be slight losers in our Doha Round simulations when developed countries cut their tariffs and those least-developed countries choose not to reform at all themselves.[23] These 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 they would lose after correcting for those realities, it remains true that preference-receiving countries could always be compensated for preference erosion via increased aid at relatively very little cost to current preference providers – and in the process other developing countries currently hurt by least-developed country preferences would enjoy greater access to the markets of reforming developed countries.

Farm output and employment would grow in developing countries under a Doha Round agreement. Despite a few low-income countries losing slightly under our Doha Round scenarios when they choose to reform little themselves, 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, North-east Asia and the United States that these levels would fall – and even there it is only by small amounts, contrary to the predictions of scaremongers who

claim agriculture would be decimated in reforming countries (Table 11). Even if there was a move to completely free merchandise trade, the developed countries' share of the world's primary agricultural GDP by 2015 would be only slightly lower at 25 instead of 30 percent (but their share of global agricultural exports would be diminished considerably more: from 53 to 38 percent).

Poverty could be reduced under a Doha Round agreement. Under the full merchandise trade liberalization scenario, extreme poverty in developing countries (those earning no more than $1 a day) would drop by 32 million 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 and there the reduction would be 6 percent.[24] Under the Doha Round scenarios reported in Table 12, 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 5 (of which 0.5 million are in Sub-Saharan Africa) and by 6.3 million in the case of Doha Scenario 6 (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 Round 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 Round negotiations.

Developing countries could trade off special- and-differential treatment for more market access. If developing countries were to tone down their call for special-and- differential treatment,[25] in terms of wanting smaller cuts and longer phase-in periods, reciprocity means they could expect bigger tariff and subsidy cuts from developed countries. Similarly, if they were to forego their call for lesser cuts for "special products", they could demand that developed countries forego their call for some "sensitive products" to be subject to smaller tariff cuts. A comparison of Scenarios 5 and 6 in Tables 7, 8 and 9 shows that the economic payoffs for low-income countries even if high-income countries do not reciprocate with larger offers is considerable. Moreover, by embracing those options to reform more in the context of the Doha Round negotiations would make it harder for high-income countries to resist the call to respond with larger reforms themselves.

Key Policy Implications

Among the numerous policy implications that can be drawn from the above findings, the following are worth highlighting.

Prospective gains are too large to not find the needed political will to make Doha Round negotiations a success. With gains of the order of $300 billion per year at stake from

implementing the July Framework Agreement (even if no reforms are forthcoming in services and 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 helpful also because they can lock in previous unilateral trade liberalizations that otherwise would remain unbound and hence be vulnerable to backsliding; and they can be used as an opportunity to multilateralism previously agreed preferential trade agreements and thereby reduce the risk of trade diversion from those bilateral or regional arrangements[26].

Since developed countries would gain most, and have the most capacity and influence, they need to show leadership in the WTO system. The large developed countries cannot generate a successful agreement on their own, but nor can the Doha Round negotiations succeed without a major push by those key traders. Their capacity to assist poorer economies could hardly manifest itself more clearly than in encouraging global economic integration via trade reform and, in particular, in opening developed-country 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 more – accelerating South-South trade in addition to South-North trade.

Outlawing 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 it would raise the cost of surplus disposal). China has already committed not to use them and other developing countries, too, can find more-efficient ways of stabilizing their domestic food markets than by dumping surpluses abroad.

Even more importantly, agricultural tariff and domestic support bindings must be cut hugely to remove binding overhang and provide some genuine market opening. Getting rid of the binding overhang that resulted from the Uruguay Round agreements, particularly with "dirty tariffication", must be a priority.[27] The highest-subsidizing countries, namely the European Union, the United States and Norway, need to reduce their domestic 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*. But more than that is needed if market access is to expand.

If a choice had 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 non-quota holders. (Being against the non-discrimination spirit of the

GATT, they deserve the same fate as textile quotas, which were finally abolished altogether at the end of 2004, after a ten-year phasing out period.) Exempting even just a few sensitive and special products is undesirable as it would reduce hugely 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 designate some sensitive and special products, it would be crucial to impose a cap such that any product with a bound tariff in excess of, say, 100 percent had to reduce it to that cap rate.

Expanding non-agricultural market access at the same time as reforming agriculture is essential. A balanced exchange of concessions is impossible without adding other sectors, and it needs to be more than just textiles and clothing (which also benefit developing countries disproportionately), even though they 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. Since developing countries are trading so much more with each other now, 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 better than such discriminatory action would be MFN tariff reductions by them. Even least-developed countries should consider reducing their tariff binding overhang at least, since doing that in the context of the Doha Round negotiations gives them more scope to demand "concessions" (or compensation for preference erosion or other contributors to terms of trade deterioration) from richer countries – and yet would not require them to cut their own *applied* tariffs very much.

Conclusions

The good news in this essay is that there is a great deal to be gained from liberalizing merchandise – and especially agricultural – trade in the Doha Round negotiations, with a disproportionately high share of that potential gain available for developing countries (relative to their share of the global economy). Moreover, it is the poorest people in developing countries that appear to be most likely to gain from global trade liberalization, namely farmers and unskilled laborers in developing countries. To realize that potential gain, it is in agriculture that by far the greatest cuts in bound tariffs and subsidies are required. But the political sensitivity of farm-support programs, coupled with the complexities of the measures introduced in the WTO Agreement on Agriculture and of

The **mockingbird** is the state bird of Tennessee.

Cordell Hull represented a district of Tennessee in the Congress of the United States, and was elected a senator from there, before becoming U.S. Secretary of State (1933-44).

"The mockingbird is known for fighting for the protection of his home – falling, if need be, in its defense. Mockingbirds are not intimidated by animals larger than themselves and have been known to attack eagles"

– Diana Wells, *100 Birds and How They Got Their Names* (Chapel Hill, NC: Algonquin, 2002)

Trade Policy Analyses

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the modalities set out in the July 2004 framework agreement, ensure the devil will be in the details of the final Doha Round agreement. It is for that reason that *ex ante* empirical analysis of the sort provided in the study summarized above is a prerequisite for countries engaged in the Doha Round negotiations.

What emerges from our analysis is that developing countries would not *have* to reform very much under the Doha Round mandate because of the large gaps between their tariff bindings and applied rates. That is even truer if they exercise their right (as laid out in the July 2004 framework agreement) to undertake lesser tariff cuts than developed countries. In that case, they gain little in terms of improved efficiency of national resource use. Yet, as Avind Panagariya[28] and others have warned, for a non-trivial number of low-income countries their terms of trade could deteriorate, as shown in Table 3. For some that is because they would lose tariff preferences on their exports. For others it is because they are net food importers and so would face higher prices for their imports of temperate foods.

To realize more of their potential gains from trade, developing and least-developed countries would need to forego some of the special-and-differential treatment they have previously demanded, and perhaps also commit to additional unilateral trade (and complementary domestic) reforms, and to invest more in trade facilitation. High-income countries could encourage them to do so by being willing to open up their own markets more to developing-country exports[29] and by providing more targeted aid.

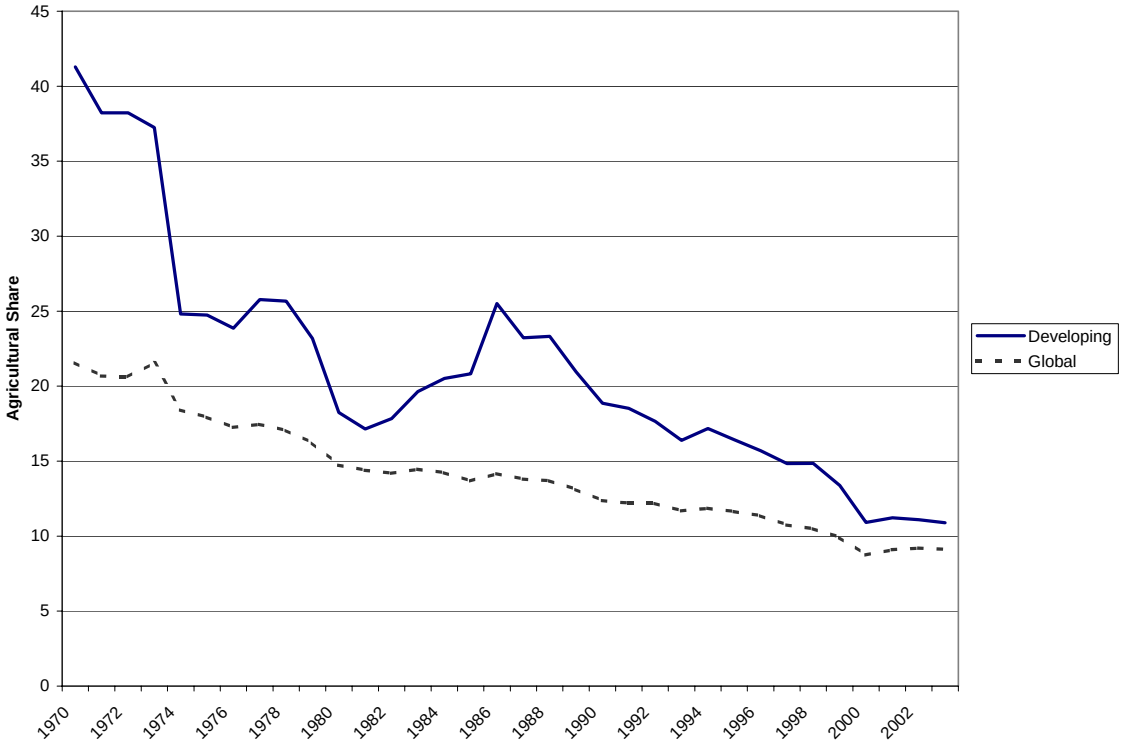
To that end, a new proposal has been put forward to reward developing-country commitments to greater trade reform with an expansion of trade-facilitating aid, to be provided by a major expansion of the current "integrated framework", which is operated by a consortium of international agencies for least-developed countries.[30] 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.[31] Furthermore, 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 2004 package does not guarantee major gains from the Doha Round negotiations. On the one hand, 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. But what is equally clear, on the other hand, is that major gains are possible if only

the political will to reform protectionist policies – especially in agriculture – can be mustered.

Figure 1: The declining share of agriculture and food in world and developing[a] countries' merchandise exports, 1970 to 2003

(percent)

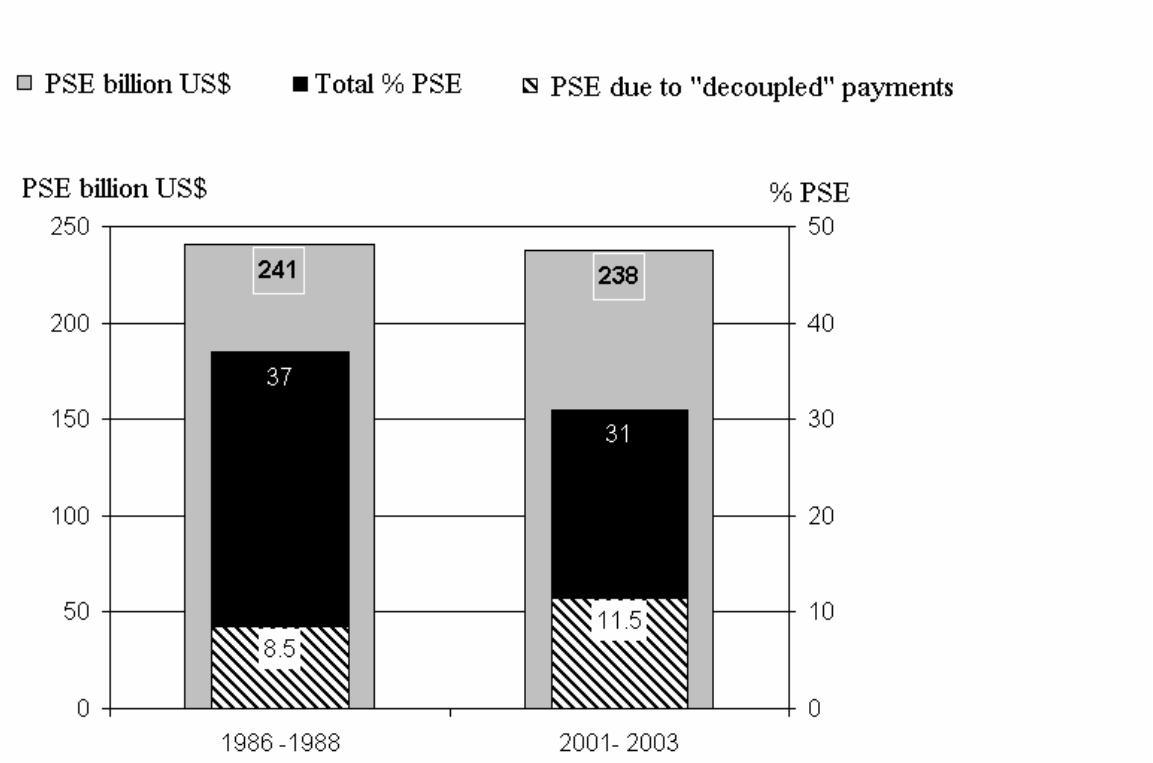


[a] Developing countries here do not include East Asia's newly-industrialized economies of Hong Kong, Korea, Singapore and Taiwan.

Source: COMTRADE data in the WITS database (see www.wits.worldbank.org and http://unstats.un.org/unsd/comtrade/)

Figure 2: Agricultural producer support in high-income countries, by value, percent and type of support, 1986 to 2003

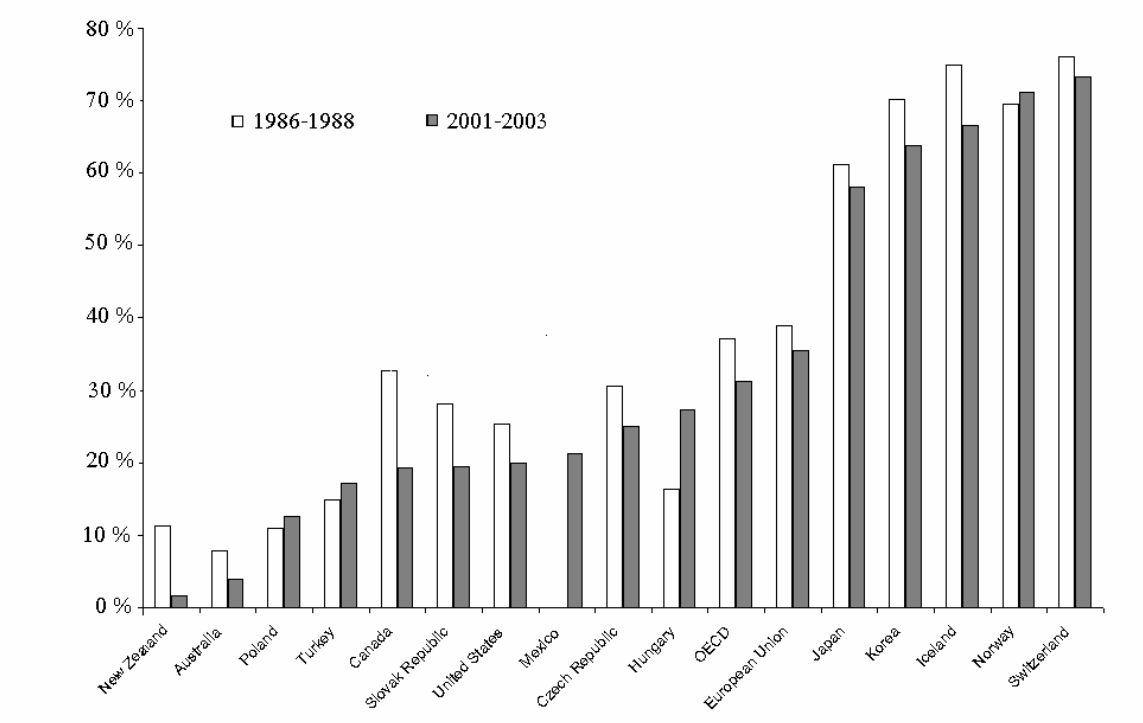
($ billion and percentage of total farm receipts from support policy measures)



Source: PSE estimates from the OECD's database (see www.oecd.org)

Figure 3: Agricultural producer support in high-income countries, by country, 1986 to 2003

(percentage of total farm receipts from support policy measures)



[1] Czech Republic, Hungary, Poland and the Slovac Republic data are for 1991-93 in the first period.

[2] Austria, Finland and Sweden are included in the OECD average for both periods but also in the EU average for the latter period.

Source: PSE estimates from the OECD's database (see www.oecd.org)

Table 1: Average applied import tariffs, by sector and region, 2001

(percent, *ad valorem* equivalent)

Importing Region: / *Exporting region:*	High-income countries[b]	Developing countries[a]	*WORLD*
Agriculture and food			
High-income countries[b]	18	18	17.8
Developing countries[a]	14	18	15.6
All countries	16	18	16.7
Textiles and wearing apparel			
High-income countries[b]	8	15	12.0
Developing countries[a]	7	20	9.3
All countries	8	17	10.2
Other manufactures			
High-income countries[b]	2	9	4.1
Developing countries[a]	1	7	2.5
All countries	1	8	3.5
All merchandise			
High-income countries[b]	3	10	5.4
Developing countries[a]	3	10	4.9
All countries	3	10	5.2

[a] These import-weighted averages incorporate tariff preferences provided to developing countries, unlike earlier versions of the GTAP database. They assume the EU is a single customs territory.

[b] High-income countries include the newly industrialized East Asian customs territories of Hong Kong, Korea, Singapore and Taiwan as well as Europe's transition economies that joined the EU in April 2004.

Source: Table 12.2 in Kym Anderson, Will Martin and Dominique van der Mensbrugghe, "Market and Welfare Implications of Doha Reform Scenarios", Ch. 12 in Kym Anderson and William Martin (eds), *Agricultural Trade Reform and the Doha Development Agenda* (New York: Palgrave Macmillan, 2005).

Table 2: Agricultural weighted average import tariffs, by region, 2001

(percent, *ad valorem* equivalent, weights based on imports)

	Bound tariff	MFN applied tariff	Actual applied tariff[a]
Developed countries	27	22	14
Developing countries	48	27	21
of which: LDCs	*78*	*14*	*13*
WORLD	37	24	17

[a] Includes preferences and in-quota TRQ rates where relevant, as well as the *ad valorem* equivalent of specific tariffs. Developed countries include Europe's transition economies that joined the EU in April 2004. The "developing countries" definition used here is that adopted by the WTO and so includes East Asia's four newly industrialized tiger economies, which is why the 21 percent shown in column 3 is above the 18 and 14 percent shown in the first column of Table 1.

Source: Table 4.2 in Sebastien Jean, David Laborde and Will Martin, "Consequences of Alternative Formulas for Agricultural Tariff Cuts", Ch. 4 in *Agricultural Trade Reform and the Doha Development Agenda*, edited by Kym Anderson and William Martin, New York: Palgrave Macmillan, 2005.

Table 3: Impacts on real income from full liberalization of global merchandise trade, by country/region, 2015

(*Impacts in* 2015 *relative to the baseline, in 2001 dollars*)	***Real income gain*** *($billion)*	**Income changes due just to change in terms of trade** ($billion)	***as % of baseline income in 2015***
Australia and New Zealand	6.1	3.5	1.0
EU 25 plus EFTA	65.2	0.5	0.6
United States	16.2	10.7	0.1
Canada	3.8	-0.3	0.4
Japan	54.6	7.5	1.1
Korea and Taiwan	44.6	0.4	3.5
Hong Kong and Singapore	11.2	7.9	2.6
Argentina	4.9	1.2	1.2
Bangladesh	0.1	-1.1	0.2
Brazil	9.9	4.6	1.5
China	5.6	-8.3	0.2
India	3.4	-9.4	0.4
Indonesia	1.9	0.2	0.7
Thailand	7.7	0.7	3.8
Vietnam	3.0	-0.2	5.2
Russia	2.7	-2.7	0.6
Mexico	3.6	-3.6	0.4
South Africa	1.3	0.0	0.9
Turkey	3.3	0.2	1.3
Rest of South Asia	1.0	-0.8	0.5
Rest of East Asia	5.3	-0.9	1.9
Rest of LAC	10.3	0.0	1.2
Rest of ECA	1.0	-1.6	0.3
Middle East and North Africa	14.0	-6.4	1.2
Selected SSA countries	1.0	0.5	1.5
Rest of Sub Saharan Africa	2.5	-2.3	1.1
Rest of the World	3.4	0.1	1.5
High-income countries	201.6	30.3	0.6
Developing countries--WTO definition	141.5	-21.4	1.2
Low- and middle-income countries	85.7	-29.7	0.8
Middle-income countries	69.5	-16.7	0.8
Low-income countries	16.2	-12.9	0.8
East Asia and Pacific	23.5	-8.5	0.7
South Asia	4.5	-11.2	0.4
Europe and Central Asia	7.0	-4.0	0.7
Middle East and North Africa	14.0	-6.4	1.2
Sub-Saharan Africa	4.8	-1.8	1.1
Latin America and the Caribbean	28.7	2.2	1.0
World total	**287.3**	**0.6**	**0.7**

Source: Table 12.4 in Kym Anderson, Will Martin and Dominique van der Mensbrugghe, "Market and Welfare Implications of Doha Reform Scenarios", Ch. 12 in *Agricultural Trade Reform and the Doha Development Agenda*, edited by K. Anderson and W. Martin, New York: Palgrave Macmillan, 2005.

Table 4: Effects on economic welfare of full trade liberalization from different groups of countries and products, 2015

(percent)

(a) Distribution of effects on* global *welfare

From full lib'n of: / ***Percentage due to:***	Agriculture and food	Textiles and clothing	Other manufactures	ALL GOODS
Developed[a] country policies	46	6	3	55
Developing countries' policies	17	8	20	45
ALL COUNTRIES' POLICIES	**63**	**14**	**23**	**100**

(b) Distribution of effects on* developing countries' *welfare

From full lib'n of: / ***Percentage due to:***	Agriculture and food	Textiles and clothing	Other manufactures	ALL GOODS
Developed[a] country policies	30	17	3	50
Developing countries' policies	33	10	7	50
ALL COUNTRIES' POLICIES	**63**	**27**	**10**	**100**

[a] Developed countries include the transition economies of Eastern Europe and the former Soviet Union.

Source: Table 12.6 in Kym Anderson, Will Martin and Dominique van der Mensbrugghe, "Market and Welfare Implications of Doha Reform Scenarios", Ch. 12 in *Agricultural Trade Reform and the Doha Development Agenda*, edited by K. Anderson and W. Martin, New York: Palgrave Macmillan, 2005.

Table 5: Distribution of global welfare impacts of fully removing agricultural tariffs and subsidies, 2001

(percent)

Agricultural liberalization component:	Beneficiary region: High-income[a] countries	Developing countries	World
High-income[a] countries' liberalization of:			
Import market access	66	27	93
Export subsidies	5	-3	2
Domestic support	4	1	5
All measures	***75***	***25***	***100***

[a] High-income countries include the newly industrialized East Asian customs territories of Hong Kong, Korea, Singapore and Taiwan as well as Europe's transition economies that joined the European Union in April 2004.

Source: Summarized from Table 2.7 in Tom Hertel and Roman Keeney, 'What's at Stake: The Relative Importance of Import Barriers, Export Subsidies and Domestic Support', Ch. 2 in *Agricultural Trade Reform and the Doha Development Agenda*, edited by Kym Anderson and William Martin, New York: Palgrave Macmillan, 2005.

Table 6: Impacts of full global merchandise trade Liberalization on real factor prices, 2015

(*Percent change relative to the baseline in 2015*)

	Un-skilled wages	Skilled wages	Capital	Land owner rent	CPI
Australia and New Zealand	3.1	1.1	-0.3	17.2	1.2
EU 25 plus EFTA	0.0	1.3	0.7	-51.0	-1.3
United States	0.1	0.3	0.0	-9.2	-0.4
Canada	0.7	0.7	0.4	26.9	-0.9
Japan	1.3	2.2	1.1	-67.2	-0.1
Korea and Taiwan	6.5	7.1	3.8	-45.0	-0.7
Hong Kong and Singapore	3.2	1.6	0.3	4.4	1.1
Argentina	2.9	0.5	-0.7	21.3	0.3
Bangladesh	1.8	1.7	-0.2	1.8	-7.2
Brazil	2.7	1.4	1.6	32.4	2.2
China	2.2	2.2	2.8	-0.9	-0.4
India	2.8	4.6	1.8	-2.6	-6.0
Indonesia	3.3	1.5	0.9	1.0	0.5
Thailand	13.2	6.7	4.2	11.4	-0.6
Vietnam	25.3	17.6	11.0	6.8	-2.3
Russia	2.0	2.8	3.5	-2.2	-3.3
Mexico	2.0	1.6	0.5	0.6	-1.4
South Africa	2.8	2.5	1.8	5.7	-1.6
Turkey	1.3	3.4	1.1	-8.1	-0.3
Rest of South Asia	3.7	3.2	0.1	0.1	-2.7
Rest of East Asia	5.8	4.2	5.2	-0.9	-1.6
Rest of Latin America & Car	5.7	1.4	-0.4	17.8	-1.2
Rest of E. Europe & C. Asia	2.3	4.2	2.1	-0.3	-2.6
Middle East & North Africa	4.1	4.1	2.6	2.4	-3.1
Other Southern Africa	6.0	1.6	0.0	4.6	0.4
Rest of Sub-Saharan Africa	8.2	6.5	2.2	5.2	-5.0
Rest of the World	4.4	2.7	1.1	6.3	-1.4

Source: Table 12.10 in Kym Anderson, Will Martin and Dominique van der Mensbrugghe, "Market and Welfare Implications of Doha Reform Scenarios", Ch. 12 in *Agricultural Trade Reform and the Doha Development Agenda*, edited by Anderson and Martin (New York: Palgrave Macmillan and the World Bank, 20060.

Table 7: Welfare effects of possible Doha Round reform scenarios, 2015
(percent difference from baseline, and Equivalent Variation in income in 2001 $billion)

Agricultural subsidy cuts[a] plus:

	Tiered agricultural tariff cuts[b]	Propn'l agricultural tariff cuts[b]	Scenario 2 plus 2% SSP	Scenario 3 plus 200% cap	Scenario 1 plus 50% NAMA cut for HICs[c]	Scenario 1 plus 50% NAMA cut for HICs+DCs[d]
	Scenario 1	***Scenario 2***	***Scenario 3***	***Scenario 4***	***Scenario 5***	***Scenario 6***
High-income[e] countries	0.20	0.18	0.05	0.13	0.25	0.30
Middle-income countries	0.10	0.10	0.00	0.01	0.15	0.21
of which: ***China***	***-0.02***	***-0.01***	***-0.05***	***-0.04***	***0.07***	***0.06***
Low-income countries	0.05	0.04	0.01	0.00	0.18	0.30
TOTAL WORLD	**0.18**	**0.16**	**0.04**	**0.10**	**0.23**	**0.28**
(and in $billion)	*74.5*	*66.3*	*17.9*	*44.3*	*96.1*	*119.3*

[a] Elimination of agricultural export subsidies and cuts in actual domestic support as of 2001 of 28 percent in the US, 18 percent in the EU, and 16 percent in Norway.

[b] In Scenarios 1 and 2 the applied global average tariff on agricultural products is cut by roughly one-third, with larger cuts in developed countries, smaller in developing countries, and zero in least developed countries. In Scenario 1 there are three tiers for developed countries and four for developing countries, following Harbinson (WTO 2003) but 10 percentage points higher.

[c] Non-agricultural market access (NAMA) is expanded by a 50 percent tariff cut for developed countries, 33 percent for developing countries, and zero in least developed countries.

[d] Developing and least developed countries cut all agricultural and non-agricultural tariffs as much as developed countries.

[e] High-income countries (HICs) include the newly industrialized East Asian customs territories of Hong Kong, Korea, Singapore and Taiwan as well as Europe's transition economies that joined the EU in April 2004.

Source: Table 12.14 in Kym Anderson, Will Martin and Dominique van der Mensbrugghe, "Market and Welfare Implications of Doha Reform Scenarios", Ch. 12 in *Agricultural Trade Reform and the Doha Development Agenda*, edited by K. Anderson and W. Martin, New York: Palgrave Macmillan, 2005.

Table 8: Dollar change in real income in alternative Doha Round scenarios, 2015

(*change in real income in 2015 in 2001 $billion compared to baseline scenario*)

	Scen. 1	Scen. 2	Scen. 3	Scen. 4	Scen. 5	Scen. 6
Australia & New Zealand	2.0	2.2	1.2	1.2	2.4	2.8
EU 25 plus EFTA	29.5	28.2	10.7	10.9	31.4	35.7
United States	3.0	3.4	2.5	2.1	4.9	6.6
Canada	1.4	1.2	0.4	0.4	0.9	1.0
Japan	18.9	15.1	1.4	12.9	23.7	25.4
Korea and Taiwan	10.9	7.3	1.7	15.9	15.0	22.6
Hong Kong and Singapore	-0.1	-0.1	-0.2	-0.2	1.5	2.2
Argentina	1.3	1.4	1.1	1.0	1.3	1.6
Bangladesh	0.0	0.0	0.0	0.0	-0.1	-0.1
Brazil	3.3	3.2	1.1	1.1	3.6	3.9
China	-0.5	-0.4	-1.4	-1.1	1.7	1.6
India	0.2	0.1	0.2	0.2	2.2	3.5
Indonesia	0.1	0.2	0.2	0.0	1.0	1.2
Thailand	0.9	1.0	0.8	0.8	2.0	2.7
Vietnam	-0.1	-0.1	-0.1	-0.1	-0.5	-0.6
Russia	-0.3	-0.1	-0.7	-0.7	0.8	1.5
Mexico	-0.2	-0.2	-0.3	-0.3	-0.9	-0.2
South Africa	0.1	0.1	0.2	0.3	0.4	0.7
Turkey	0.6	0.5	0.1	0.0	0.7	1.4
Rest of South Asia	0.2	0.2	0.1	0.2	0.3	0.7
Rest of East Asia	0.1	0.1	0.1	1.0	0.3	0.6
Rest of Latin America & the Carib.	3.7	3.7	0.5	0.4	3.9	4.0
Rest of E. Europe and Central Asia	-0.2	-0.2	-0.2	-0.2	-0.6	-0.7
Middle East and North Africa	-0.8	-0.9	-1.2	-1.2	-0.6	0.1
Other Southern Africa	0.1	0.1	0.0	0.0	0.1	0.2
Rest of Sub-Saharan Africa	0.0	0.0	-0.3	-0.3	-0.1	0.3
Rest of the World	0.4	0.3	0.0	0.0	0.6	0.6
High-income countries	**65.6**	**57.2**	**17.8**	**43.2**	**79.9**	**96.4**
Developing countries	**9.0**	**9.1**	**0.1**	**1.1**	**16.1**	**22.9**
Middle-income countries	8.0	8.3	0.0	1.0	12.5	17.1
Low-income countries	1.0	0.8	0.2	0.0	3.6	5.9
East Asia and Pacific	0.5	0.9	-0.4	0.6	4.5	5.5
South Asia	0.4	0.3	0.3	0.4	2.5	4.2
Eastern Europe and Central Asia	0.1	0.2	-0.9	-0.9	0.8	2.1
Middle East and North Africa	-0.8	-0.9	-1.2	-1.2	-0.6	0.1
Sub-Saharan Africa	0.3	0.3	-0.2	-0.1	0.4	1.2
Latin America & the Caribbean	8.1	8.0	2.5	2.1	7.9	9.2
World total	**74.5**	**66.3**	**17.9**	**44.3**	**96.1**	**119.3**

Source: Table 12.14 in Kym Anderson, Will Martin and Dominique van der Mensbrugghe, "Market and Welfare Implications of Doha Reform Scenarios", Ch. 12 in *Agricultural Trade Reform and the Doha Development Agenda*, edited by K. Anderson and W. Martin, New York: Palgrave Macmillan, 2005.

Table 9: Percentage change in real income in Alternative Doha Round Scenarios, 2015

(*change in real income in 2015 in percent compared to baseline scenario*)

	Scen. 1	Scen. 2	Scen. 3	Scen. 4	Scen. 5	Scen. 6
Australia & New Zealand	0.35	0.38	0.22	0.20	0.42	0.48
EU 25 plus EFTA	0.29	0.28	0.11	0.11	0.31	0.36
United States	0.02	0.02	0.02	0.01	0.03	0.05
Canada	0.15	0.13	0.05	0.05	0.10	0.11
Japan	0.38	0.30	0.03	0.26	0.48	0.51
Korea and Taiwan	0.86	0.58	0.14	1.26	1.19	1.79
Hong Kong and Singapore	-0.02	-0.02	-0.04	-0.04	0.35	0.52
Argentina	0.32	0.34	0.27	0.26	0.34	0.39
Bangladesh	-0.06	-0.06	-0.03	-0.04	-0.10	-0.09
Brazil	0.50	0.49	0.17	0.17	0.55	0.59
China	-0.02	-0.01	-0.05	-0.04	0.07	0.06
India	0.02	0.02	0.03	0.02	0.25	0.40
Indonesia	0.05	0.08	0.09	0.01	0.37	0.44
Thailand	0.43	0.49	0.38	0.38	0.99	1.33
Vietnam	-0.20	-0.22	-0.11	-0.16	-0.83	-0.97
Russia	-0.06	-0.03	-0.15	-0.15	0.16	0.31
Mexico	-0.02	-0.02	-0.04	-0.04	-0.11	-0.02
South Africa	0.06	0.09	0.11	0.17	0.25	0.49
Turkey	0.25	0.22	0.02	0.02	0.26	0.55
Rest of South Asia	0.13	0.11	0.06	0.14	0.17	0.39
Rest of East Asia	0.02	0.05	0.04	0.36	0.09	0.22
Rest of Latin America & the Carib.	0.44	0.43	0.06	0.04	0.46	0.47
Rest of E. Europe and Central Asia	-0.06	-0.06	-0.09	-0.08	-0.22	-0.26
Middle East and North Africa	-0.07	-0.07	-0.10	-0.10	-0.05	0.01
Other Southern Africa	0.21	0.19	-0.03	-0.05	0.19	0.26
Rest of Sub-Saharan Africa	0.02	0.01	-0.14	-0.14	-0.02	0.13
Rest of the World	0.19	0.14	0.00	0.02	0.26	0.28
High-income countries	**0.20**	**0.18**	**0.05**	**0.13**	**0.25**	**0.30**
Developing countries	**0.09**	**0.09**	**0.00**	**0.01**	**0.16**	**0.22**
Middle-income countries	0.10	0.10	0.00	0.01	0.15	0.21
Low-income countries	0.05	0.04	0.01	0.00	0.18	0.30
East Asia and Pacific	0.01	0.03	-0.01	0.02	0.13	0.16
South Asia	0.03	0.02	0.03	0.03	0.21	0.36
Eastern Europe and Central Asia	0.01	0.02	-0.09	-0.09	0.08	0.21
Middle East and North Africa	-0.07	-0.07	-0.10	-0.10	-0.05	0.01
Sub-Saharan Africa	0.06	0.06	-0.04	-0.02	0.10	0.27
Latin America & the Caribbean	0.29	0.29	0.09	0.08	0.29	0.33
World total	**0.18**	**0.16**	**0.04**	**0.10**	**0.23**	**0.28**

Source: Table 12.14 in Kym Anderson, Will Martin and Dominique van der Mensbrugghe, "Market and Welfare Implications of Doha Reform Scenarios", Ch. 12 in *Agricultural Trade Reform and the Doha Development Agenda*, edited by K. Anderson and W. Martin, New York: Palgrave Macmillan, 2005.

Table 10: Effects on bilateral merchandise trade flows of adding non-agricultural tariff cuts to agricultural reform under Doha, 2015

($billion increase over the baseline in 2015)

	Propn'l agric reform only[a]		*Agric plus non-agric reform*[b]	
Exports to: / ***Exports from:***	High-income[c] countries	Developing countries	High-income[c] countries	Developing countries
High-income[c] countries	20	11	80	55
Developing countries	18	5	62	16
TOTAL WORLD	**38**	**16**	**142**	**71**

[a] Scenario 2 in Table 7

[b] Scenario 5 in Table 7

[e] High-income countries include the newly industrialized East Asian customs territories of Hong Kong, Korea, Singapore and Taiwan as well as Europe's transition economies that joined the EU in April 2004.

Source: Table 12.16 in Kym Anderson, Will Martin and Dominique van der Mensbrugghe, "Market and Welfare Implications of Doha Reform Scenarios", Ch. 12 in *Agricultural Trade Reform and the Doha Development Agenda*, edited by K. Anderson and W. Martin, New York: Palgrave Macmillan, 2005.

Table 11: Effects of a comprehensive Doha Round reform on agricultural output and employment growth, by region, 2005 to 2015

(annual average growth rate, percent)

	Output		Employment	
	Baseline	Scenario 5[b]	Baseline	Scenario 5[b]
Australia and New Zealand	3.5	4.3	0.4	1.0
Canada	3.5	4.0	0.2	0.6
United States	2.2	1.9	-0.8	-1.4
EU 25 plus EFTA	1.0	-0.3	-1.8	-2.8
Japan	0.5	-1.4	-2.7	-4.1
Korea and Taiwan	2.2	1.5	-1.3	-2.1
Argentina	2.9	3.5	0.9	1.5
Bangladesh	4.2	4.2	1.1	1.2
Brazil	3.3	4.4	1.1	2.2
China	4.3	4.3	0.8	0.8
India	4.3	4.4	1.0	1.0
Indonesia	3.0	3.0	-0.7	-0.6
Thailand	-0.1	0.4	-4.6	-4.3
Vietnam	5.8	5.9	3.9	4.0
Russia	1.5	1.4	-2.3	-2.4
Mexico	3.9	4.0	2.0	2.3
South Africa	2.5	2.6	0.0	0.1
Turkey	3.0	3.0	-0.5	-0.5
Rest of South Asia	4.8	4.9	2.0	2.1
Rest of East Asia	3.7	3.8	0.2	0.3
Rest of Latin America & Ca	4.4	5.3	1.9	2.6
Rest of E. Europe & C. Asia	3.3	3.3	0.0	0.0
Middle East & North Africa	4.0	4.0	1.5	1.5
Other Southern Africa	5.3	5.4	3.0	3.0
Rest of Sub-Saharan Africa	4.6	4.8	2.2	2.3
Rest of the World	5.0	5.5	2.4	2.7

Source: Table 12.17 in Kym Anderson, Will Martin and Dominique van der Mensbrugghe, "Market and Welfare Implications of Doha Reform Scenarios", Ch. 12 in *Agricultural Trade Reform and the Doha Development Agenda*, edited by K. Anderson and W. Martin, New York: Palgrave Macmillan, 2005.

Table 12: Changes in poverty (those earning <$1/day) in alternative Doha Round scenarios compared with full liberalization, 2015

		Full liberalization share	Shares under Doha alternatives		
	Baseline share		Doha Scenario 1	Doha Scenario 5	Doha Scenario 6
2015 Headcount (%)					
East Asia & Pacific	0.9	0.8	0.9	0.9	0.9
Latin America & Carib.	6.9	6.6	6.9	6.9	6.8
South Asia	12.8	12.5	12.8	12.7	12.6
Sub-Saharan Africa	38.4	36.0	38.4	38.3	38.1
All developing countries	**10.2**	**9.7**	**10.2**	**10.2**	**10.1**
2015 Headcount	**2015 level**	**Decrease from baseline in millions**	**Decrease from baseline in millions**		
East Asia & Pacific	19	2.2	0.1	0.3	0.5
Latin America & Carib.	43	2.1	0.3	0.4	0.5
South Asia	216	5.6	0.2	1.4	3.0
Sub-Saharan Africa	340	21.1	-0.1	0.5	2.2
All developing countries	**622**	**31.9**	**0.5**	**2.5**	**6.3**

Source: Authors' World Bank LINKAGE model simulations as reported in Table 17.7 in Kym Anderson, Will Martin and Dominique van der Mensbrugghe, 'Global Impact of the Doha Scenarios on Poverty', Ch. 17 in *Putting Development Back Into the Doha Agenda: Poverty Impacts of a WTO Agreement*, edited by Tom Hertel and L.Alan Winters, New York: Palgrave Macmillan and the World Bank, 2005.

[1] This chapter is based on a program of World Bank research on the implications of the Doha Round agenda for developing countries. The authors are grateful for the collaboration of all their co-contributors to that project, especially Dominique van der Mensbrugghe and Thomas Hertel, and for funding from the United Kingdom's Department for International Development. The views expressed are the authors' alone. The paper was presented at a Trade Policy Roundtable meeting of the Cordell Hull Institute in Washington, DC, on May 26, 2005. A slightly different version has been published in *The World Economy*, Oxford and Boston, Vol. 28, No. 9, September 2005.

[2] The rules of the GATT are intended, in principle, to cover all trade in goods. In practice, however, trade in agricultural products was largely excluded from their remit as a consequence of a number of exceptions in the GATT articles. Details are to be found in T.E. Josling, Stefan Tangermann and T.K. Warley, *Agriculture in the GATT* (London: Macmillan, 1996; and New York: St Martin's Press, 1996) and also in Anderson and Josling (eds), *The WTO and Agriculture* (London: Edward Elgar, 2005).

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

[4] J. Michael Finger and L. Alan Winters, "Reciprocity in the WTO", in Bernard Hoekman, Aaditya Mattoo and Paul English (eds), *Development, Trade and the WTO: a Handbook* (Washington, DC: World Bank, 2002), ch. 7.

[5] Finger and Phillip Schuler, "Implementation of Uruguay Round Commitments: The Development Challenge", in Bernard Hoekman and William Martin (eds), *Developing Countries and the WTO: A Pro-Active Agenda* (Oxford: Blackwell, 2001).

[6] Throughout, "high-income countries" refers to developed or industrialized countries and includes the newly industrialized East Asian customs territories of Hong Kong, Korea, Singapore and Taiwan, as well as Europe's "transition economies" that joined the European Union in May 2004. All others are called developing countries, which are sometimes also categorized into middle- and low-income countries.

[7] See Anderson, Yujiro Hayami *et al.*, *The Political Economy of Agricultural Protection: East Asia in International Perspective* (Boston, London and Sydney: Allen & Unwin, 1986), and Peter Lindert, "Historical Patterns of Agricultural Protection", in C. Peter Timmer (ed.), *Agriculture and the State* (Ithaca, NY: Cornell University Press, 1991).

[8] See Dale Hathaway and Merlinda Ingco, "Agricultural Liberalization and the Uruguay Round", in William Martin and Winters (eds), *The Uruguay Round and the Developing Countries* (Cambridge and New York: Cambridge University Press, 1996), ch. 2.

[9] Until recently the PSE referred to the "producer subsidy equivalent". For more about the concept and its history, see Wilfrid Legg, "Agricultural Subsidies: Measurement and Use in Policy Evaluation", *Journal of Agricultural Economics*, Andover, Hampshire, Vol. 54 No. 2, 2003, pp. 175-200.

[10] See "Doha Work Programme: Decision Adopted by the General Council on 1 August 2004" (July Framework Agreement), Document WT/L/579, World Trade Organization, Geneva, August 1, 2004.

[11] Anderson and Martin (eds), *Agricultural Trade Reform and the Doha Development Agenda* (New York: Palgrave Macmillan and the World Bank, 2006).

[12] M. Ataman Aksoy and John C. Beghin (eds), *Global Agricultural Trade and Developing Countries* (Washington, DC: World Bank, 2004).

[13] Ingco and Winters (eds), *Agriculture and the New Trade Agenda: Creating a Global Trading Environment for Development* (Cambridge and New York: Cambridge University Press, 2004).

[14] Ingco and John D. Nash (eds), *Agriculture and the WTO: Creating a Trading System for Development* (Washington, DC: World Bank, 2004; and New York: Oxford University Press, for the World Bank, 2004).

[15] Giovanni Anania, Mary Bohman, Colin Carter and Alex McCalla (eds), *Agricultural Policy Reform and the WTO: Where Are We Heading?* (London: Edward Elgar, 2004).

[16] Marcos S. Jank (ed.), *Agricultural Trade Liberalization: Policies and Implications for Latin America* (Washington, DC: Inter-American Development Bank, 2004).

[17] Dominique van der Mensbrugghe, "Linkage Technical Reference Document: Version 6.0", mimeograph, World Bank, Washington, DC, 2004. Accessable at http://siteresources.worldbank.org/INTPROSPECTS/Resources/334934-1100792545130/LinkageTechNote.pdf.

The analysis in the study reported here is vastly more sophisticated than the *ex ante* analyses undertaken for the Uruguay Round negotiations. At that time there were very few economy-wide global models, so primary reliance was put on partial equilibrium models of world food markets. See, for example, *World Development Report 1986* (New York: Oxford University Press, for the World Bank, 1986); Ian Goldin and Odin Knudsen, *Agricultural Trade Liberalization: Implications for Developing Countries* (Paris: OECD, 1990); Rodney Tyers and Anderson, *Disarray in World Food Markets: a Quantitative Assessment* (Cambridge and New York: Cambridge University Press, 1992). Estimates of protection rates were somewhat cruder and less complete. And analysts grossly overestimated the gains because they did not anticipate that tariffication would be so "dirty" in the sense of creating large wedges between bound and applied MFN tariff rates. Nor did they have reliable estimates of the tariff preferences enjoyed by developing countries or the *ad valorem* equivalent of specific tariffs. Some of these limitations also applied to *ex post* analyses of the Uruguay Round agreement; see, for example, Will Martin and Winters (eds), *The Uruguay Round and the Developing Countries* (Cambridge and New York: Cambridge University Press, 1996).

[18] There is strong evidence that trade reform in general is also good for economic growth and, partly because of that, for poverty alleviation: Winters, "Trade Liberalization and Economic Performance: an Overview", *Economic Journal*, Oxford, Vol. 114, February 2004, pp. F4-F21; David Dollar and Aart Kraay, "Trade, Growth and Poverty", *Economic Journal*, Vol. 114, February 2004, pp. F22-F49; Winters, Neil McCulloch and Andrew McKay, "Trade Liberalization and Poverty: the Empirical Evidence", *Journal of Economic Literature*, Pittsburgh, Vol. 62, No. 1, March 2004, pp. 72-115.

[19] This result is very similar to that reported from a partial equilibrium study in Bernard Hoekman, Francis Ng and Marcelo Olarreaga, "Agricultural Tariffs versus Subsidies: What's More Important for Developing Countries?" *World Bank Economic Review*, Washington, DC, Vol. 18, No. 2, 2004, pp. 175-204. In our initial empirical analysis we also included crude estimates of implicit forms of farm export subsidization, such as via food aid, export credits or state trading enterprises, but even that was not enough to raise that export subsidy share above 1 percent.

[20] Harry de Gorter and Erika Kliauga, "Consequences of TRQ Expansions and In-quota Tariff Reductions", in Anderson and Martin (eds), *op. cit.*, ch. 5.

[21] Sébastien Jean, David Laborde and Will Martin, "Consequences of Alternative Formulas for Agricultural Tariff Cuts", in Anderson and Martin (eds), *op. cit.*, ch. 4.

[22] David A. Sumner, "Reducing Cotton Subsidies: the DDA Cotton Initiative", in Anderson and Martin (eds), *op. cit*., ch. 10.

[23] As warned by, *inter alia*, Avind Panagariya, "Subsidies and Trade Barriers: Alternative Perspective", in Born Lomborg (ed.), *Global Crises, Global Solutions* (Cambridge and New York: Cambridge University Press, 2004), ch. 10.2, pp. 592-601, some low-income countries' terms of trade could deteriorate either because they would lose tariff preferences on their exports or because they are net food importers and so would face higher prices for their imports of temperate foods.

[24] 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 impacts on the poverty headcount index. We have done this by calculating the change in the real wage of unskilled workers, 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 greater than 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 only affect 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 Thomas W. Hertel and Winters (eds), *Putting Development Back Into the Doha Agenda: Poverty Impacts of a WTO Agreement* (New York: Palgrave Macmillan and the World Bank, 2005), they are able to give a broad region-wide indication of the poverty impact.

[25] T.E. Josling, "Consequences of Special and Differential Treatment for Developing Countries", in Kym Anderson and William Martin (eds), *op. cit*., ch 3.

[26] As stressed in Peter D. Sutherland *et al*., *The Future of the WTO*, Report by the Consultative Board (Geneva: World Trade Organization, 2004).

[27] As shown by Joseph F. Francois and William Martin, "Commercial Policy, Bindings and Market Access", *European Economic Review*, Vol. 48, No. 3, June 2004, pp. 665-79, any binding cut is useful for the long run even if it brings no immediate cut in applied rates.

[28] Panagariya, *op. cit.*

[29] Nuno Limao and Marcelo Olarreago, *Trade Preferences to Small Developing Countries and the Welfare Costs of Lost Multilateral Liberalization*, Policy Research Working Paper No.3565 (Washington, DC: World Bank, 2005), suggest preference erosion could be addressed by replacing the current margin of preference with an equivalent import subsidy for products from preference-receiving countries, thereby retaining the preference status quo while taking away this reason not to undertake most-favored-nation tariff cuts.

[30] See Bernard Hoekman, "Operationalizing the Concept of Policy Space in the WTO: Beyond Special and Differential Treatment", *Journal of International Economic Law*, Oxford, Vol. 8, 2005, and Hoekman, "Making the WTO More Supportive of Development", *Finance and Development*, Washington, DC, Vol. 42, No. 1, March 2005, pp. 14-18.

[31] See Commission for Africa, *Our Common Interest* (London: Department for International Development, 2005), pp. 296-7.