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Trade liberalization, agriculture, and poverty in low-income countries

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Trade Liberalization, Agriculture, and Poverty in Low-income Countries

Kym Anderson*

March 2003

Abstract

This paper offers an economic assessment of the opportunities and challenges provided by the WTO's Doha Development Agenda, particularly through agricultural trade liberalization, for low-income countries seeking to trade their way out of poverty. After discussing links between poverty, economic growth and trade, it reports modelling results showing that farm product markets remain the most costly of all goods market distortions in world trade. It focuses on what such reform might mean for countries of South Asia and sub-Saharan Africa in particular, both without and with their involvement in the MTN reform process. What becomes clear is that if those countries want to maximize their benefits from the Doha round, they need also to free up their own domestic product and factor markets so their farmers are better able to take advantage of new market-opening opportunities abroad. Other concerns of low-income countries about farm trade reform also are addressed: whether there would be losses associated with tariff preference erosion, whether food-importing countries would suffer from higher food prices in international markets, whether China's WTO accession will provide an example of trade reform aggravating poverty via cuts to prices received by Chinese farmers, and the impact on food security and poverty alleviation. The paper concludes with lessons of relevance for low-income countries for their own domestic and trade policies.

Keywords: WTO, agricultural protection, trade liberalization, poverty alleviation

JEL classification: F13, F15, F17, Q17

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At the Fourth Ministerial Meeting of the World Trade Organization (WTO) in Doha in November 2001, members agreed to launch the next comprehensive round of multilateral trade negotiations (MTNs). The attempt to do so at the previous Ministerial in Seattle in late 1999 was aborted, not least because developing country members believed they had not benefited sufficiently from the preceding Uruguay Round. That belief still persists, and the poorer developing countries of South Asia and sub-Saharan Africa (SSA) in particular remain sceptical that a new round of negotiations will benefit them – notwithstanding the substantial focus on their development concerns in the Doha Ministerial Declaration (WTO 2001b).

If the poorer developing countries of South Asia, SSA and elsewhere are to become constructively engaged in this next attempt to liberalize trade multilaterally, they need to be convinced that they will receive sufficient gains from trade reform to warrant the inevitable costs of negotiation and adjustment. They and the donor community also need to be convinced that trade reform will alleviate rather than add to poverty and food insecurity in their countries. The net food-importing developing countries, and those currently receiving tariff preferences or food aid, are especially worried that they will be made worse off by agricultural trade reform.

This paper offers an economic assessment of the opportunities and challenges provided by the Doha Development Agenda's MTN round for low-income countries seeking to trade their way out of poverty. After a brief discussion of the links between poverty, economic growth and trade, it reports modelling results showing that farm product markets remain the most costly of all goods market distortions in world trade. It then focuses on what such reform might mean for countries of South Asia and SSA in particular, both without and with their involvement in the MTN reform process. What becomes clear from that comparison of modelling results is that if those countries want to maximize their benefits from the Doha Development Agenda, they need also to free up their own domestic product and factor markets so their farmers are better able to take advantage of new market-opening opportunities abroad. The paper then addresses other concerns of low-income countries about farm trade reform: whether there would be losses associated with tariff preference erosion, whether food-importing countries would suffer from higher food prices in international markets, whether China's WTO accession will provide an example of trade reform aggravating poverty via cuts to prices received by Chinese farmers, and the impact on food security and poverty alleviation. The paper concludes with lessons of relevance for low-income countries for their own domestic and trade policies.

Links between poverty, economic growth and trade

Throughout most of the nineteenth and twentieth centuries, the number of people in the world in absolute poverty (defined as living on less than the equivalent of US\$1 per day in 1985 PPP terms) had been increasing almost continually (Bouguignon and Morrisson 2002). Since the late 1970s, however, the number has declined by more than 200 million, or from 15 to 7 per cent of the global population; and the number on less than US\$2 per day has declined by 450 million, or from 40 to 19 per cent of the world's people, according to new estimates by Sala-i-Martin (2002).

Remarkable though that recent achievement has been in such a short period, Sala-i-Martin's data suggest there are still 350 million on less than US\$1 and almost one billion on less than US\$2 per day – most of whom are in Asia and SSA.¹ Since poverty alleviation for those remaining poor people is a high priority, efforts have been made to understand the reasons behind successful alleviation. The evidence presented by Sala-i-Martin suggests economic growth differences have been largely responsible for the differences in poverty alleviation across regions, a finding supported by numerous other studies (for example, Dollar and Kraay 2002). Initiatives that boost national economic growth rates are therefore likely to be helpful in the fight against poverty, *ceteris paribus*.

Trade liberalization is one such initiative that tends to boost economic growth.² But it also alters relative prices, so its net effect on poverty reduction depends also on the signs of those relative product and factor price changes. If the price changes are pro-poor, then they will reinforce any positive growth effects of trade reform on the poor.

Potential gains from the WTO's Doha Development Agenda

Tariffs facing poor-country exports to other markets are high. At the end of the Uruguay Round negotiations, the tariff equivalent of import market access barriers to goods trade were low for minerals and energy raw materials and for most manufactures entering developed country markets (the exceptions being textiles and clothing); but they were high for numerous manufactures entering developing country markets and even higher for agricultural goods entering both rich and poor countries (Table 1). Since developing countries' interests in market access opportunities abroad are primarily in either farm products and/or light manufactures such as textiles and clothing – goods that are the most protected in world trade (see also WTO 2001a) – they have a great deal to gain potentially from the Doha Round.

That fact is reflected in a recent set of empirical estimates using a model of the global economy known as GTAP (Global Trade Analysis Project), which is an applied general equilibrium model based in Purdue University (Hertel 1997).³ According to estimates in Anderson (2003), of all the economic gains to be had in 2005 from removing the

¹ World Bank estimates (for example, Collier and Dollar 2002, Figure 3) also indicate a decline in the number of poor, but they suggest those numbers on less than US\$1 per day are several times larger, possibly as many as 1.2 billion in 2000.

² The link between openness and economic growth, while not completely unambiguous and universal, is strong, and there is no evidence that openness is harmful to growth (see the discussion in McCulloch *et al.* 2001, Chapter 2). Trade's impact on growth can be much reduced in the absence of liberal domestic markets, macro stability, and appropriate institutions and infrastructure, however, since those are all necessary to enable producers to respond to changes in international market signals (Hoekman *et al.* 2002). For a comprehensive survey of the links between trade, growth and poverty, see Berg and Krueger (2002). A survey of the empirical evidence is available in Winters *et al.* (2002).

³ The GTAP model is a standard, multi-region model that is currently in use by several hundred researchers in scores of countries on five continents. The Version 4 data base builds on contributions from many of these individuals, as well as the national and international agencies in the GTAP Consortium.

Table 1
Average tariff equivalents of import market access barriers to goods trade, by source and destination region, 1995 (per cent)

Exporting region	Importing region		
	High income	Low income	World
Agriculture			
High income	16	22	18
Low income	15	18	16
World	16	20	17
Manufactures			
High income	1	11	4
Low income	3	13	7
World	2	12	5
Minerals/energy			
High income	0.1	1.3	0.4
Low income	0.4	5.2	2.4
World	0.2	3.0	1.1

Source: Hertel *et al.* (1999).

barriers to trade in goods that will still be in place after all Uruguay Round commitments are implemented, almost half (48 per cent) would come from agricultural and processed food policy reform in OECD countries (Table 2) – even though such products in those countries contribute only 4 per cent of global GDP and less than one-tenth of world trade. Another one-sixth of the welfare gains would come from reform of farm and food policies of developing countries.

Textiles and clothing reforms would be the next biggest contributor, although they appear small by comparison with agricultural reform: their potential global welfare contribution is only one-ninth that of agriculture's (7 per cent compared with 65 per cent). This big difference reflects two facts: one is that projected distortions to prices for agriculture are more than twice those for textiles and clothing in 2005; the other is that textiles and clothing contribute only 1.5 per cent to the value of world production and 5 per cent to the value of world trade, half or less the shares for farm products (Anderson 2003).

Two assumptions are crucial in generating the results reported in Table 2, however. One is that China and Taiwan, having joined the WTO at the end of 2001/start of 2002, enjoy the same accelerated access to OECD markets under the Uruguay Round Agreement on Textiles and Clothing (ATC) as other developing countries that were already WTO members. The other crucial assumption is that OECD countries fully implement the spirit of the ATC by the end of 2004, that is, they remove remaining import quotas and do not replace them with similarly protective instruments such as safeguard measures. Dropping either of those assumptions reduces very substantially the estimated gains from Uruguay Round implementation (Anderson *et al.* 1997b), and therefore would raise the potential gains from textile and clothing reform in the next and subsequent WTO rounds above that reflected in Table 2.

Table 2
Sectoral and regional contributions to economic welfare gains^a from completely removing trade barriers globally, post-Uruguay Round, 2005

(a) In 1995 US\$ billions

Liberalizing region ^b	Benefitting region ^b	Agriculture and food	Other primary	Textiles and clothing	Other manufactures	Total
High income						
	High income	110.5	-0.0	-5.7	-8.1	96.6
	Low income	11.6	0.1	9.0	22.3	43.1
	Total	122.1	0.0	3.3	14.2	139.7
Low income						
	High income	11.2	0.2	10.5	27.7	49.6
	Low income	31.4	2.5	3.6	27.6	65.1
	Total	42.6	2.7	14.1	55.3	114.7
All countries						
	High income	121.7	0.1	4.8	19.6	146.2
	Low income	43.0	2.7	12.6	49.9	108.1
	Total	164.7	2.8	17.4	69.5	254.3

(b) In per cent of total global gains

Liberalizing region	Benefitting region	Agriculture and food	Other primary	Textiles and clothing	Other manufactures	Total
High income						
	High income	43.4	0.0	-2.3	-3.2	38.0
	Low income	4.6	0.1	3.5	8.8	16.9
	Total	48.0	0.0	1.3	5.6	54.9
Low income						
	High income	4.4	0.1	4.1	10.9	19.5
	Low income	12.3	1.0	1.4	10.9	25.6
	Total	16.7	1.1	5.5	21.7	45.1
All countries						
	High income	47.9	0.1	1.9	7.7	57.5
	Low income	16.9	1.0	4.9	19.6	42.5
	Total	64.8	1.1	6.8	27.3	100.0

Notes:

^a No account is taken in these calculations of the welfare effects of environmental changes associated with trade liberalization, which could be positive or negative depending in part on how environmental policies are adjusted following trade reforms.

^b High and low income here are short-hand for developed and developing countries.

Source: Anderson (2003).

The distribution of the gains across regions that would result from full trade liberalization is clear from the upper half of Table 2. As always, most of the gains accrue to the liberalizing region. For example, all but one-tenth (12/122) of the gains

from high-income countries removing distortions to their trade in farm and food products accrues to those countries. Even so, that farm trade reform contributes more than one-quarter of the total welfare gains to developing countries from rich countries liberalizing their merchandise trade (12/43). That is more than the contribution of rich countries' barriers to textile and clothing trade (9/43), and over half the contribution of all other manufacturing trade barriers. As for developing countries liberalizing their own farm and food policies, three-quarters of the benefits therefrom stay with the developing countries themselves (31/43), and those policies contribute almost half of the gains from those countries' overall merchandise trade reform (31/65).

WTO members were right, therefore, to insist that agricultural reform must continue into the new century without a pause. In particular, developing countries as a group have a major stake in the process of farm policy reform continuing: according to the model results in Table 2, farm and food policies globally contribute 40 per cent (43/108) of the cost to developing economies of global goods trade distortions. Textile and clothing policies also harm them greatly, but barely one-third as much as farm policies.⁴ The Table shows that 60 per cent of the contribution to developing countries from trade liberalization – and 72 per cent of that from farm trade liberalization – would come from reforms by developing countries themselves.⁵

The above GTAP modeling study found that full liberalization of rich-country farm policies would boost the volume of global agricultural trade by more than 50 per cent, but would cause real international food prices to rise by only 5 per cent on average. For the subset of low-income countries that would remain net food-importing economies after such a reform and thereby suffer a deterioration in its terms of trade, the extent of the rise in their food import prices would be small.

The results for developing countries in Table 2 are disaggregated in Table 3 to show the effects on subgroups of developing countries. In dollar terms the gains from global liberalization would be almost as great for Southeast Asia as for South Asia, while less than half as large for the much smaller economic region of SSA. Being more agrarian, SSA would gain proportionately more than Asia from agricultural trade reform by either rich or poor countries. Virtually all regions are net gainers from complete abolition of trade barriers: even though some of them suffer a terms of trade deterioration, that cost is more than offset by improved efficiency of domestic resource use following reform.

⁴ It should be recognized that these results ignore the effect of tariff preference erosion. In so far as a developing country receives such preferences at present in OECD markets, the above results slightly overstate the potential gains from their reforms. This point is taken up below.

⁵ Martin (2001) points out that since the mid-1980s, the share of developing countries' agricultural exports that are going to other developing countries has risen from less than 30 per cent to more than 40 per cent.

Table 3

Disaggregation of sectoral and regional contributions to economic welfare gains from completely removing trade barriers globally, post-Uruguay Round, 2005 (1995 US\$ billion)

	Rich country liberalization			Developing country liberalization			Global liberalization	
	Total	Agric.	Manuf.	Total	Agric.	Manuf.	All merchandise	
	US\$	US\$	US\$	US\$	US\$	US\$	US\$	% of GDP
North America	2.57	11.37	-8.80	19.41	8.51	10.91	21.99	0.2
Western Europe	50.29	60.81	-10.52	20.68	2.02	18.66	70.97	0.7
Australia/New Zealand	7.69	8.25	-0.55	1.83	1.23	0.60	9.53	2.0
Japan	36.02	29.98	6.04	7.69	-0.33	8.02	43.71	0.8
China	5.01	-4.63	9.64	-10.79	-3.60	-7.19	-5.78	-0.4
Hong Kong, Korea, Taiwan	3.97	0.77	6.09	24.09	11.97	12.12	28.06	2.3
Indonesia	0.63	0.16	0.47	1.38	0.22	1.16	2.00	0.9
Other Southeast Asia	0.43	-0.90	1.33	10.25	5.67	4.59	10.69	2.6
India	3.69	0.68	3.01	5.14	1.90	3.24	8.83	1.8
Other South Asia	1.37	0.12	1.25	5.22	3.02	2.20	6.59	4.6
Brazil	3.11	1.44	1.67	13.29	4.59	8.71	16.41	2.0
Other Latin America	14.83	14.25	0.57	4.47	2.75	1.73	19.30	2.4
Turkey	0.12	-0.59	0.71	1.94	0.60	1.33	2.05	0.9
Middle East & N. Africa	-1.07	-2.81	1.74	-0.71	-0.35	-0.36	-1.78	-0.2
Economies in Transition	4.49	1.21	3.28	1.90	2.30	-0.40	6.40	0.7
South African CU	0.86	0.76	0.10	0.51	0.38	0.13	1.36	0.9
Other SSA	1.72	1.58	0.14	1.49	1.23	0.27	3.22	1.4
Rest of world	3.92	2.62	1.30	6.87	3.24	3.63	10.79	3.0
<i>Low income</i>	<i>43.08</i>	<i>11.77</i>	<i>31.31</i>	<i>65.06</i>	<i>33.90</i>	<i>31.17</i>	<i>108.14</i>	<i>1.9</i>
<i>High income</i>	<i>96.58</i>	<i>110.41</i>	<i>-13.83</i>	<i>49.61</i>	<i>11.43</i>	<i>38.18</i>	<i>146.19</i>	<i>0.6</i>
Total	139.65	122.18	17.48	114.68	45.33	69.35	254.33	0.8

Source: Anderson (2003).

The final two columns of Table 3 reveal that, even though developing countries would gain slightly less than rich countries in aggregate dollar terms from a move to global free trade in merchandise, they gain much more as a percentage of GDP: 1.9 per cent, which is more than three times the percentage for rich countries. For SSA (other than South African Customs Union – SACU) the gain would be 1.4 per cent of its GDP.

Furthermore, those developing countries would gain less if they abstained from reforming their own policies. To illustrate the point, the effects on low-income countries in SSA and South Asia are examined first without and then with those economies participating in reform (drawing on more-recent results reported in Anderson and Yao 2003). If all regions other than South Asia and SSA were to remove their trade distortions remaining after the end of 2004 (when all Uruguay Round commitments are to have been implemented), the world economy would structurally adjust to allow each region to exploit even more its comparative advantages. Sub-Saharan Africa and South Asia would have to undertake some structural changes within and between key sectors even if they chose not to join in such a trade reform (Table 4(a)). In particular,

Table 4
Percentage difference in sectoral output when all merchandise trade distortions remaining post-Uruguay Round are removed, 2005

(a) Reform in all regions except SSA and South Asia

	South Africa	Other SSA	India	Other South Asia
Rice	6	1	12	9
Wheat	18	2	6	6
Other cereal grain	114	85	1	1
Vegetables, fruit, nuts	1	0	1	1
Oil seeds	2	3	-1	2
Other crops	43	-8	-2	1
Plant fibre	-12	11	-2	0
Livestocks	28	15	0	1
Other food products	28	2	-2	29
Meat and dairy products	38	14	1	3
Forestry fish	2	0	0	1
Energy mineral	-2	0	1	2
Vegetable oils fats	0	0	-4	-5
Textile wap	-8	-2	-10	-16
Other manufactures	-7	0	3	11
Services	0	0	0	0

(b) Reform in all regions including SSA and South Asia

	South Africa	Other SSA	India	Other South Asia
Rice	4	-1	19	18
Wheat	-3	-6	15	7
Other cereal grain	171	90	1	2
Vegetables, fruit, nuts	1	9	0	-3
Oil seeds	-5	-1	0	7
Other crops	61	9	-2	-4
Plant fibre	-10	-1	-2	-1
Livestocks	-6	54	0	6
Other food products	22	3	1	38
Meat and dairy products	-6	0	2	8
Forestry fish	7	4	0	3
Energy mineral	29	7	6	3
Vegetable oils fats	0	2	-15	-17
Textile wap	1	-13	5	29
Other manufactures	-8	-5	19	60
Services	1	0	2	4

Source: Anderson and Yao (2003).

agriculture would expand at the expense of labour-intensive manufacturing in those low-income countries. However, SSA would expand its agricultural output more, and contract its manufacturing more, if it also undertakes reforms itself than if it stands aside from reform. The trade balance for the different product groups is affected by the above production effects plus changes in consumption, following relative price and income changes. By comparing Tables 5(a) and 5(b) it is evident that net food imports are less for SSA and South Asia following the removal of remaining trade barriers in 2005, but more so when those developing countries participate in the reform.

The results in Anderson and Yao (2003) suggest SSA's economic welfare gain is twice as great from participating in than from standing aside from further trade liberalization. However, most of that greater gain goes to the SACU. The reason that 'Other SSA' as an aggregate does not gain more is that the very considerable gains from more efficient resource use there would be offset by an adverse change in the region's terms of trade when all of those countries expand their primary product exports simultaneously.

That finding raises the question: would the economy of each SSA country be better off if its government did not participate in the next WTO round? The answer is: certainly not. On the contrary, their economy's welfare would be even worse if their government did not participate, for several reasons. One is that it would forego the economic efficiency gains from reforming its own policies while still suffering the terms of trade loss from others' reforms (since any one of those countries is too small for its own policy choice to alter the terms of trade significantly).⁶ Second, it would forego the opportunity to seek through the negotiations greater market access for its particular exports to other countries. And third, there is the promise in this next round that any participating poor economies that lose from taking part in the multilateral liberalization could secure much more compensation than in previous rounds, in the form of technical assistance and funds for trade policy capacity building (WTO 2001b).

It is thus in the national economic interest of such countries to be pressured from abroad to commit to such reform, painful though that may be politically for its government. The political pain tends to be less, and the prospect for a net economic gain greater, the more sectors the country involves in the reform. The economic gain is prospectively greater the more sectors it involves because a wider net reduces the possibility that reform is confined to a subset of sectors that are not the most distorted. (When so confined, resources might move from the reformed sector to even more inefficient uses, thereby reducing rather than improving the efficiency of national resource use.)

If these were not enough reasons for national governments in SSA to become active participants in the Doha Round, including embracing trade reform at home, there are at least three other reasons for doing so. One is that the more each country is prepared to provide trading partners with greater access to its own market, the more those partners are willing to reciprocate by providing greater access to their markets. That benefits exporters in all countries, offsetting the loss of domestic political support from import-competing producers. The second reason is that once a country binds its reform

⁶ For empirical support for this proposition, see for example Anderson and Strutt (1999) with respect to Indonesia. The point is made strongly also in the volume on the Uruguay Round edited by Martin and Winters (1996).

Table 5
Changes in sectoral trade balances when all merchandise trade distortions remaining post-Uruguay Round are removed, 2005 (1995 US\$ billion)

(a) Reform in all regions except SSA and South Asia

	South		India	Other South
	Africa	Other SSA		Asia
Rice	-54	28	1,897	397
Wheat	-50	44	671	48
Other cereal grain	1,016	1,815	50	1
Vegetables, fruit, nuts	-114	-8	67	-17
Oil seeds	-79	48	119	39
Other crops	2,427	-2,068	28	-108
Plant fibre	-106	589	30	-70
Livestocks	21	365	6	4
Other food products	5,062	339	-494	3,232
Meat and dairy products	2,954	569	153	130
Forestry fish	-4	-54	0	-25
Energy mineral	-436	-198	185	-297
Vegetable oils fats	-145	-22	-186	-70
Textile wap	-498	-143	-7,159	-6,315
OtherManufactures	-8,066	-469	4,552	3,484
Services	-1,927	-836	80	-433

(b) Reform in all regions including SSA and South Asia

	South		India	Other South
	Africa	Other SSA		Asia
Rice	-82	-54	2,565	689
Wheat	-152	-252	1,736	163
Other cereal grain	1,681	1,911	67	0
Vegetables, fruit nuts	-66	881	-118	-590
Oil seeds	-62	68	224	-175
Other crops	3,609	1,704	-647	-2,001
Plant fibre	-73	158	-244	-782
Livestocks	73	1,146	-3	7
Other food products	4,976	230	195	3,530
Meat and dairy products	-480	-239	458	36
Forestry fish	29	270	-234	-148
Energy mineral	6,760	4,442	-410	-3,381
Vegetable oils fats	-125	-46	-1,292	-585
Textile wap	-605	-1,490	629	3,706
Other manufactures	-14,086	-8,054	-5,068	1,698
Services	-1,398	-676	2,142	-2,168

Source: Anderson and Yao (2003).

commitments, as required under WTO, its government is better able to resist the temptation to give in to political pressure to reverse that reform. And the third reason

has to do with the spread of globalization, which is raising the net political benefits of opening up markets versus remaining protectionist and interventionist. The dramatic falls in the costs of doing business across national boundaries mean not only that the rewards from opening one's own economy to foreign trade and investment flows have risen, but also that the costs of *not* adopting and maintaining an open, stable and transparent set of economic policies also are rising. If, as a result of these globalization forces, the governments of developing economies choose to embrace more reform at home, it makes sense to capitalize on that decision by using the next WTO Round to demand greater access to trading partners' markets in return.

Qualifications to the global modeling results

There are three other important source of gains from trade reform that are not captured in the above results, namely, gains from reform to trade in services, gains from increasing competition and economies of scale, and dynamic gains. They are discussed in turn below. Then the next section addresses the question of whether it matters that global trade liberalization erodes poor countries' tariff preferences.

The nature of service sector policies makes estimating their effects much more difficult than is the case for goods barriers to trade. Nonetheless, preliminary empirical attempts suggest restrictions on services trade and investment flows are very substantial, particularly by developing countries (Findlay and Warren 2000). Moreover, the GATS negotiations during the Uruguay Round resulted in almost no commitments to lowering those impediments (Hoekman 1996). During that Round many developing countries considered the negotiations that led to the General Agreement on Trade in Services (GATS) as something they had to put up with in order to get agriculture and textiles 'concessions'. Yet the gains to developing countries from opening up their services markets, as for developed countries, would be enormous. Those gains would come not just directly to consumers but also to producers who purchase services as intermediate inputs into their goods production. Farmers in particular would benefit from services reform because they depend heavily on such things as transport services to get their produce to domestic and overseas markets (Anderson and Hoekman 2000).

Other attempts at measuring distortions to services trade together with mark-ups by imperfectly competitive firms also are beginning to bear fruit. A study by Francois (2001) includes one set of estimates of the tariff equivalent of those distortions in a version of the GTAP model that also incorporates imperfect competition and scale economies. Specifically, that study assumes monopolistic competition exists in the non-primary sectors involving economies of scale that are internal to each firm. These modifications amplify the estimated gains from trade considerably. For example, that study finds that if applied tariff rates for both goods and services were to be cut in half, the global gains would be US\$385 billion, of which 51 per cent would be due to services reform. The 49 per cent due to halving tariffs on goods trade (US\$192 billion) in the Francois study compares with the above estimate (where no imperfect competition is assumed) of around US\$250 billion from totally removing all tariffs on merchandise trade. The key point to draw from this comparison is that the gains from trade reported above should be interpreted as lower-bound estimates for at least two reasons: because they apply only to goods trade, leaving aside the important distortions

prevalent in services markets; and because they are based on the assumption that there are no economies of scale and that perfect competition prevails in all sectors.

Both aspects of this point are especially important for SSA. With respect to policies at home they are important partly because that region has among the highest barriers to services trade (Francois 2001, Table C.2), and partly because the region's national economies are small and hence those services trade barriers translate into a high degree of monopolistic activity and diseconomies of small scale.

With respect to policies abroad, this point is perhaps even more important for SSA, especially as it applies to ocean shipping. Two-thirds of sub-Saharan African exports are primary products. Most of them are being shipped in bulky unprocessed or semi-processed form. The region's export earnings are thus affected significantly by the cost of ocean shipping services. That service sector is characterized by a high degree of oligopolistic activity on the part of ship owners, virtually all of whom are developed country firms. While ever that service sector remains restrictive, the benefits of freer trade will be captured in part by the cartel of shipowners who can charge a higher mark-up above their marginal costs as import tariffs on goods are lowered. To illustrate this, a recent empirical study was undertaken by Francois and Wooten (2001). They estimate that, depending on the degree of collusion, shippers could absorb for themselves, in the form of higher mark-ups, up to half the gains that exporters would otherwise enjoy from goods trade liberalization if only shipping was a competitive service activity. The clear conclusion to draw from the Francois/Wooten study is that liberalizing trade in maritime services under GATS is likely to boost substantially the gains from merchandise trade reform and especially reform of bulky commodities such as agricultural products from developing countries.

None of the studies reported above draw on a truly dynamic economic model. They measure well the effects of producers reallocating their resources and consumers adjusting their purchases when relative product prices change with trade reform, but they do not measure the impact of such reform on investment behaviour. Yet we know from experience that when markets are freed up, investors divert their funds towards expanding the now-more-profitable activities and away from the now-less-profitable ones. They are also willing to invest more in aggregate, because of the reduced uncertainty associated with binding the reforms in WTO schedules. That boost to investment applies even more following the reductions in barriers to foreign investment and hence international technology transfers of the past two decades. Thus economic growth is boosted by that diversion and expansion of investment funds, over and above the boost in output from reallocating existing resource endowments.

This additional effect is omitted from most empirical modelling efforts for two reasons: partly because it takes much longer for analysts to build and to run dynamic models than comparative static ones, and partly because the extent to which investors respond to changing incentives is less well understood and hence cannot be included with as much certainty as the other behavioural characteristics that are common to both comparative static and dynamic models. Keeping that in mind, it is nonetheless instructive to note the results of a recent study that examined the range of outcomes generated as the responsiveness of productivity to openness is varied.

The World Bank (2002, Chapter 6) conducted a study very similar to the one reported above, and obtained very similar results when its version of the GTAP model was in

comparative static mode (a global welfare gain from complete liberalization of merchandise trade of US\$355 billion per year by 2015, compared with the present study's estimate of US\$254 billion as early as 2005 when the world economy would be somewhat smaller, and with agricultural policies still responsible for about two-thirds of that gain). When their same model was switched into dynamic mode, however, that global gain increased two- to three-fold over reasonable ranges of productivity responsiveness parameters. This adds further weight to the claim that the earlier welfare results should be considered as very much lower-bound estimates of the gains from trade liberalization.

In short, developing countries have much to gain economically from taking part in the next round of WTO negotiations to liberalize trade, and more so the more they are willing to embrace reform at home so as to enable their firms to take greatest advantage of the opportunities provided by the opening up of markets abroad. And this applies especially to agricultural trade reform.

Does it matter that global trade reform erodes tariff preferences?

In the past, many developing countries have put their negotiating efforts more into seeking extensions of preferential trading schemes than into cuts to remaining most-favoured-nation (MFN) barriers to trade in agricultural, textile or other products. That first option is currently still before them in at least two forms: through some extensions to tariff preferences to developing countries; and through expanding sub-regional free-trade areas.

There are several types of preferential access schemes that have been designed to mitigate the effects of high tariffs on exports from developing countries to advanced economies. They range from very broad ones with minor tariff concessions, such as the Generalized System of Preferences (GSP), to market-specific ones such as the European Union's provision of duty free access for certain volumes of certain products from certain developing countries (mostly former colonies of EU member states) in Africa, the Caribbean and the Pacific (formerly the Lomé Convention, now the Cotonou Agreement), to the new EU proposal for duty- and quota-free access for most exports from the Least Developed Countries (LDCs, as classified by the United Nations). To what extent are these arrangements stepping stones or stumbling blocks towards better market access abroad for poor African countries? In particular, how effective are these arrangements as compared with MFN liberalizations under the WTO in delivering benefits to the poorer economies (as distinct from just being easier politically for national governments to sign)?

African, Caribbean and Pacific (ACP) developing countries that have been granted preferential access to European Union markets for some of their exports typically consider themselves privileged, believing that it better enables them to compete in those markets. Not only do they not have to pay the same import duty as other foreign suppliers, but also they receive the EU domestic price, which is higher than the international price to the extent of the protection afforded by the tariff on non-ACP imports.

Beneficial though this might sound, such an assessment ignores four important points. First, many other equally poor but non-ACP developing countries are harmed by the ACP preferences. This was made abundantly clear in the 1990s during the infamous dispute-settlement case that was brought to the WTO concerning the EU's banana import regime. One background study showed that for every dollar of benefit that the banana policy brought to producers in ACP countries, the regime harmed non-ACP developing country producers by almost exactly one dollar – and in the process harmed EU consumers by more than thirteen dollars (Borrell 1999a). It is difficult to imagine a more inefficient way of transferring welfare to poor countries, since EU citizens could have, through direct payments, been thirteen times as effective in helping ACP banana producers and not hurt non-ACP banana producers at all. Such wasteful trade diversion is avoided under non-discriminatory, MFN liberalizations that result from multilateral trade negotiations under WTO.

Second, the additional production that is encouraged in those ACP countries getting privileged access to the high-priced EU market is not internationally competitive at current prices (otherwise it would have been produced prior to getting that preferential treatment). Indeed the industry as a whole may not have existed in the ACP country had the preference scheme not been introduced.⁷ In that case, its profits are likely to be lean despite the scheme, and would disappear if and when the scheme is dismantled. Efforts to learn the skills needed, and the sunk capital invested in that industry rather than in ones in which the country has a natural comparative advantage, would then earn no further rewards.

Third, the ACP preferential access scheme under the Lomé Convention has not been a reciprocal agreement, that is, the developing countries were not required to open their markets to EU products. While that makes life easy for ACP politicians, it contributes nothing to the removal of the wasteful trade-restrictive policies of the ACP countries. This contrasts with market access negotiations under WTO, which are characterized by reciprocity: you receive greater access to my markets (on an MFN basis) on the condition that your trading partner receives a similar degree of improvement in access to your markets.

Fourth and perhaps most importantly, the ACP preference scheme reduces very substantially the capacity for developing countries as a group to press for more access to EU markets. It does this in two ways: by reducing the number of such countries arguing against protection, and by creating a subset of developing countries supporting the EU's protectionist stance (in order to continue to receive the high domestic prices in the EU market). This point is crucial, and yet it is often not appreciated. Perhaps if these preferences had not been offered in the first place, developing countries would have negotiated much more vigorously in previous GATT rounds for lower tariffs on agricultural and other imports into the EU. That in turn would have placed greater pressure on Japan and others to reduce their agricultural protectionism also. The end result would have been higher international prices for agricultural products that, for developing country producers as a group, may have been more than sufficient to offset the lower prices received in the EU market for a subset of those producers.

⁷ Alternatively, the ACP scheme may have caused an existing industry to become less competitive. An extreme example of an industry that has ossified as a consequence of regulations introduced to share the expected benefits of EU preferences is sugar in Mauritius (Borrell 1999b).

A similar set of provisos can be made about the EU's recent proposal to extend preferences for UN-designated 'least developed countries' (LDCs). That initiative would provide duty- and quota-free access to the EU for exports of all merchandise except arms (Cernat *et al.* 2002). It received in-principle, best-endeavours endorsement at the 3rd WTO Ministerial in Doha in November 2001, but without any specific timetable.⁸

Liberal though that proposal sounds, note that it does not include trade in services (of which the most important for LDCs would be movement of natural persons, that is, freedom for LDC labourers to work in the EU or other high-wage countries).⁹ Also, a number of safeguard provisions are included in addition to the EU's normal anti-dumping measures. Furthermore, access to three politically sensitive agricultural markets, bananas, rice and sugar, would be phased in by the EU only gradually over the next eight years (and would be subject to stricter safeguards). Not surprisingly, it is these three products, but especially sugar, that offer the greatest potential for growth in trade from least developed countries to the EU (see Figure 4.1 of Cernat *et al.* 2002).

Several empirical studies of the proposal have already appeared. A World Bank study by Ianchovichina *et al.* (2001) compares the EU proposal, from the viewpoint of SSA, with recent initiatives of the United States and Japan. Their GTAP modelling results suggest that even the most generous interpretation of the US's Africa Growth and Opportunity Act (which they model as unrestricted access to the US for all SSA exports) would benefit SSA very little because the US economy is already very open and, in the products where it is not (for example, textiles and clothing), SSA countries have little comparative advantage. Likewise they find the Japanese proposal of free access to Japan's market for industrial products helps SSA hardly at all, since the region exports few industrial products. By contrast, the EU proposal, especially if it were to apply to all QUAD countries (the EU, the US, Canada and Japan), would have a sizeable effect on SSA trade and welfare – provided agriculture is included in the deal. Just from EU access alone, SSA exports would be raised by more than US\$0.5 billion and SSA economic welfare would increase by US\$0.3 billion per year (a 0.2 per cent boost). This is very similar to a recent estimate by UNCTAD/Commonwealth Secretariat (2001, Chapter 3).

The estimated benefits are not surprising given that agriculture and food products account for more than half SSA exports. These items are highly protected in the EU and other QUAD countries, and little is provided for them in the way of preferential access under the GSP. The results overstate the benefits of the EU proposal, however, as this World Bank study assumes all SSA countries (excluding relatively wealthy South Africa and Mauritius), not just the LDCs amongst them, would get duty- and quota-free access.

Another World Bank study, by Hoekman *et al.* (2002), uses a partial equilibrium approach and looks at the benefit of the EU initiative for LCDs not just in SSA but

⁸ In Paragraph 42 of the Ministerial Declaration (WTO 2001b) it simply says: 'We commit ourselves to the objective of duty-free, quota-free market access for products originating from LDCs'.

⁹ On the potential gains from freeing international trade in unskilled labour services globally, see Walmsley and Winters (2002).

globally. It finds that trade of LDCs would increase by US\$2.5 billion per year if all QUAD countries provided them duty- and quota-free access on all merchandise.¹⁰ However, almost half of that increase would come as a result of trade diversion from other developing countries. The authors suggest this is trivial because it represents less than 0.1 per cent of other developing countries' exports (about US\$1.1 billion).¹¹ That misses a similar point to the one made above, however. It is that if the 48 LDCs are given such preferences, they will become advocates *for* rather than *against* the continuation of MFN tariff peaks for agriculture and textiles – diminishing considerably the number of WTO members negotiating for their reduction. It may be true that reductions in agricultural and textile tariffs would help LDCs much less than it would help other developing countries, as the study by Hoekman *et al.* (2002) finds; but the gains to consumers in the QUAD would be more than sufficient to allow them to increase their aid to LDCs to compensate for the loss of income from preference erosion. To put the point in a blunter but more general way, trade can be worse than direct aid if the trade is preferential and thereby distortionary.

Wouldn't food-importing countries lose from higher international food prices?

Among the net food-importing developing countries, some fear agricultural protection cuts by OECD countries will lead to higher international food prices for their imports. Yet even those developing countries need not lose out from farm support cuts abroad. If, for example, they are close to self-sufficient in food without price supports (as are many net food-importing countries in Asia and SSA), and reform abroad raises the international price of food, they may switch to become sufficiently export-oriented that their net national economic welfare rises. A second possibility is that the developing country's own policies are sufficiently biased against food production that the country is a net importer, despite having a comparative advantage in food. In that case, it has been shown that the international price rise can improve national economic welfare, even if the price change is not sufficient to turn that distorted economy into a net food exporter (Anderson and Tyers 1993). That comes about because the higher price of food attracts mobile resources away from more-distorted sectors, thereby improving the efficiency of national resource allocation. Because of these two possibilities, the number of poor countries for whom a rise in international food prices might cause some hardship is much smaller than the number that are currently not net exporters of agricultural products.

What about those developing countries whose comparative advantage is gradually moving from primary products to (initially unskilled) labour-intensive manufactures, as in South Asia? While that industrialization lowers their direct interest in agricultural trade reform abroad, it heightens their keenness to see barriers to exports of textiles and

¹⁰ This and other estimates of gains from preferential market access provisions need to be discounted to the extent that rules of origin, sanitary and phytosanitary barriers, anti-dumping duties and the like limit the actual trade allowed. For a detailed analysis of these types of restrictions on EU imports from Bangladesh in recent years, see UNCTAD/Commonwealth Secretariat (2001, Chapter 5).

¹¹ The impact outside the LDC group would be far from trivial for Mauritius, however, since the vast bulk of its exports are quota-restricted sales of clothing and sugar to the EU and US. See the discussion in UNCTAD/Commonwealth Secretariat (2001, Chapter 6).

clothing lowered. That interest of theirs in textile trade expansion should be shared by agricultural-exporting developing countries, for if South Asia could export more manufactures, it would tend to become a larger net importer of agricultural products. Conversely, lowered industrial-country barriers to agricultural trade would reduce the need for the more land-abundant developing countries to move into manufactures in competition with the newly industrializing ones. Scope clearly exists for the two groups to band together and negotiate as a single voice calling for barriers to both farm and textile trade to be lowered, so that each group can better exploit its comparative advantage to the direct benefit of the vast majority of poor people in both.

Isn't China an example where trade reform will add to poverty via lower domestic prices for farm products?

Because China's accession to WTO involves a decline in the domestic price of some farm products, and because farm households in China are among the country's poorest, that trade reform is often pointed to as an example of one that will exacerbate poverty. To explore that possibility, a set of empirical studies was commissioned recently by the World Bank. The GTAP model was used to generate the changes in product and factor prices expected from the commitments to reform that China made in its WTO accession negotiations. These were then mapped to the earning and spending patterns of various household types and regions in China as revealed in China's rural and urban household surveys. The results suggest that the conventional wisdom – that China's WTO accession will impoverish its rural people via greater import competition in its agricultural markets – need not prevail. One needs to keep in mind that, even if prices of some (land-intensive) farm products fall, those for other (labour-intensive) farm products could rise. Also, the removal of restrictions on China's exports of textiles and clothing will boost town and village enterprises, so demand for non-farm workers in rural areas may grow even if demand for farm labour in aggregate falls.

New estimates of the likely changes in agricultural prices as a result of WTO accession are drawn on to examine the factor reward implication of China's WTO accession empirically using the GTAP model. Results reported in Anderson *et al.* (2002) suggest farm-nonfarm and Western-Eastern income inequality may well rise but rural-urban income inequality need not. That conclusion is supported by a more-detailed study of households by Chen and Ravallion (2002). They find negligible impacts on inequality and a small reduction in poverty in aggregate, but some variance across households and regions. Farm households tend to lose, especially those highly dependent on feed grain production (in Northeastern China) and in hinterland regions with weak links to the booming non-farm sectors and eastern provinces. But the losses are at most very small, amounting to less than 5 per cent of household income. Facilitating the transfer of some labour from less-lucrative farm activities to now-more-lucrative non-farm work could (with the usual remittances back to the farm household) be sufficient to ensure all gain from China's WTO accession.

The study by Anderson *et al.* (2002) also examines how much difference it could make if the *hukou* system that restricts rural-to-urban migration were to be abolished. Their results suggest that the sign of the effects could be switched to favour the poorer farm households – albeit at the expense of the richer non-farm ones – if the remaining WTO accession-related reforms were to be accompanied by reform of the *hukou* system that

allowed some members of those households to obtain higher-paying non-farm employment and repatriate earnings back to their farm family. And of course aggregate national economic welfare would be enhanced by that labour market reform as well. This illustrates the general point that gains from trade reform will be greater, the more liberal are domestic product and factor markets.

A summary of those modelling results can be seen in Table 6. Without labour market reform, WTO accession for China would slightly reduce rewards to unskilled farm labour and to agricultural land while raising rewards to all other factors of production. That suggests farm households earning less than 60 per cent of their income from unskilled nonfarm work could be harmed (albeit only slightly) from WTO accession. If complete abolition of restrictions to off-farm migration accompanied WTO accession reforms, however, the final column of Table 6 suggests all types of farm households could be better off as more family members are attracted to higher-paying off-farm work.

In so far as China's WTO accession puts upward pressure on international farm product prices, that would have the same pro-poor consequences in other developing countries as the multilateral farm trade reform discussed above. However, the extent of that price rise and the associated increase in China's imports of farm products is going to be minor, and certainly will not, as implied by the title of Lester Brown's 1995 book, 'starve the world' (see the empirical results in Anderson *et al.* 1997a,b).

Wouldn't poverty and food insecurity increase in low-income countries because of higher international food prices?

The impact of trade liberalization on income distribution and thereby on poverty is not always clear: even though the effects of trade policies on capital owners and workers have been studied by trade theorists for centuries, applying that theory to the real world turns out to be a complex empirical task (Winters 2000; McCulloch *et al.* 2001; Hoekman *et al.* 2002). This is because the economy-wide effects depend (a) on the shares of households' income from different productive factors such as labour and land, whose prices will have changed (depending on the size of the changes in relative producer prices, factor substitutability, factor intensities, and factor mobility between sectors), (b) on their expenditure shares on different products (whose consumer prices also will have changed and not necessarily to the same extent as producer prices not least because of marketing margins), and (c) on any changes in net transfers to them (for example, increased handouts, decreased taxation, more remittances from urban relatives). Those complexities make it difficult to generalize a priori, or even in the face of empirical modelling studies when they report effects of reform just on production, trade, prices and aggregate economic welfare. Even so, some observations are nonetheless worth making about the effects on poverty and food security of reducing agricultural protectionism globally.

Most low-income countries in SSA have not propped up the producer price of food. In so far as an international food price rise is transmitted domestically, the vast majority of the poor would benefit directly. This is because they are in farm households and are net sellers of food. Even poor landless farm labourers who are net buyers of food would benefit indirectly from agricultural trade liberalization via a rise in the demand for their

Table 6
Changes in China's real factor prices and national economic welfare due to its WTO accession,
2001 to 2007 (per cent and, for national welfare, 1997 US\$ billions)

	Core WTO accession scenario	Alternative scenario: core case plus also removing labour market distortion
Factor rewards		
Farm unskilled wages	-0.7	16.8
Rental price of land	-5.5	-9.7
Nonfarm unskilled wages	1.2	-3.8
Skilled labour wages	0.8	-1.7
Rental price of capital	1.3	-1.4
Farm household income*		
Farm household type-A	-1.6	6.8
Farm household type-B	-0.8	3.6
Farm household type-C	0.1	0.4

Note: * Farm income from agriculture is made up of 57 per cent from unskilled farm labour, 26 per cent from agricultural land and 17 per cent from farm capital, according to the GTAP database. In 1999 on average 51 per cent of rural household income in China was earned outside agriculture, mostly from unskilled labour. Therefore, to illustrate the importance of those off-farm earnings for farm families, three types of farm households are shown in this table: it is assumed nonfarm unskilled labour contributes 0 per cent of total farm household income for type A, 30 per cent for type B, and 60 per cent for type C.

Source: Anderson *et al.* (2002).

unskilled labour, assuming that raises their wage sufficient to more than offset the rise in food prices. Since the more affluent people in cities would find it relatively easy to pay a little extra for food, the only other major vulnerable group is the under-employed urban poor. But even they may not be worse off because the trade reform would be likely to generate a more-than-offsetting increase in the demand for their (often informal sector) services.

What about the impact of reform on food price variability and other aspects of food security, especially as it affects the poorest households? Contrary to popular belief, trade liberalization is much more likely to reduce than raise food insecurity for the vast majority of the world's poor. Food security means always having access to the minimum supply of basic food necessary for survival. The key to that, in addition to peace and greater efficiency in the functioning of staple food markets, is strengthened

purchasing power of the poor. That is, enhancing food security is mainly about alleviating poverty. The rate of food self-sufficiency is at most only a supplementary indicator, and only while there remains a perception that food insecurity rises when the level of food self-sufficiency in basic foods falls much below 100 per cent.¹²

Eliminating all agricultural policy distortions in developed countries would raise international prices for agricultural products on average, and reduce their variance by ‘thickening’ the market, which would stimulate production in non-protected countries. According to one recent study (Diao *et al.* 2001), that would boost the value of agricultural exports of developing countries by 24 per cent while dampening their agricultural imports by just 2 per cent. That suggests food self-sufficiency in many low-income countries would rise. As well, since a high proportion of the poorest households in developing countries are producers and net sellers of food, they would benefit from such reform. In both respects, therefore, food security for the vast majority of households in low-income countries should be enhanced on average. Those same households would be helped even further if agricultural price-depressing policies were in place domestically and these are removed. The latter reform also boosts self-sufficiency in agricultural products and thereby boosts even further perceived food security in those economies.

The Diao *et al.* (2001) study estimates that eliminating developing countries’ own agricultural price distortions would boost their farm export value by a further 6 per cent. True, the households that are net buyers of food in such economies will face higher food prices; but whether they become less food secure depends also on what happens to their earnings (and/or transfers). If they are landless rural poor, their earning prospects will have risen along with the growth in demand for farm labour. As for urban households, the vast majority of them are more affluent than those in rural households and so can well afford to pay higher market prices for food. This suggests only a small proportion of households in low-income economies would be net food buyers at risk of becoming more food-insecure as a result of rising domestic food prices following trade liberalization.

What about in low-income economies where agricultural trade liberalization means lower domestic prices for agricultural products because such countries that have kept domestic food prices above international levels via import restrictions? It is true that removing those distortions will reduce farm incomes in those countries (albeit by more for larger than smaller farms). Certainly urban households will benefit from lower food prices. However, food self-sufficiency will fall – and it is the fall in both farm earnings and food self-sufficiency that focuses the attention of those who argue that agricultural trade liberalization is bad for poor farm households.

Focusing on just the direct effects of agricultural trade policy reform can be misleading, however, not least because it does not take account of the fact that such reform is typically done in the context of multilateral, economy-wide liberalization. Being multilateral means that other countries’ farm protection cuts raise international food prices and so less of a price fall occurs than when a country cuts its agricultural

¹² Diaz-Bonilla *et al.* (2001), provide charts showing both the least-developed countries and the net food-importing developing countries have enjoyed much faster growth since the 1970s in total exports than in food imports, with the former being three to five times the latter.

protection unilaterally. And being economy-wide means the decline in demand for farm labour is more or less than offset by a growth in demand for labour in expanding non-farm industries.

In short, at least two points are worth stressing. First, eliminating agricultural policy distortions in developed countries would increase the mean and decrease the variance of international prices for agricultural products, which would stimulate production in other countries. That suggests food self-sufficiency would rise in those low-income countries that transmit international prices to their domestic market. Second, since a high proportion of the poorest households in low-income countries are producers and net sellers of food, they would be key beneficiaries of such reform. In both respects, therefore, food security for the vast majority of households in low-income countries should be enhanced on average. Those same households would be helped even further if they had been subject to price-depressing domestic policies and these were removed. The latter reform also boosts self-sufficiency in agricultural products and thereby boosts perceived food security even further in those economies. The households that are net buyers of food in such economies would face higher food prices, but whether they become less food secure depends also on what happens to their earnings (and/or transfers). If they are landless rural poor, their earning prospects will have risen along with the growth in demand for farm labour. As for urban households, the vast majority of them are more affluent than those in rural households and so can well afford to pay higher market prices for food. This suggests only a small proportion of households in low-income economies would be net food buyers at risk of becoming more food-insecure as a result of rising domestic food prices following trade liberalization.

The risk of re-instrumentation of agricultural protection

If reducing agricultural protection/increasing market access in rich countries is able to contribute to poverty alleviation in developing countries, then that objective will be compromised by efforts to substitute new forms of protection as traditional protective instruments are phased out. The imposition of tariff rate quotas accompanied by very high out-of-quota tariffs, and the administration of quotas so as to ensure less than full usage of them, are two ways in which agricultural protection changes following the Uruguay Round were minimized. As a result, many developing countries are struggling to identify any significant growth in agricultural export earnings resulting from the Uruguay Round Agreement on Agriculture (Mathews 2002).

There are at least two ways in which cuts may be minimized following the Doha Round too. One is via an expansion of exempt support measures to satisfy so-called non-trade concerns related to the alleged ‘multifunctionality’ of agriculture – even though those concerns can readily be met much more directly and hence in less trade-distorting ways than is being proposed (Anderson 2000; Paarlberg *et al.* 2002). While the proposal originated in the richest, most-protective economies, it is now being embraced by farmer groups in numerous developing countries as well. More than twenty such countries’ farm groups plus the EU met in Geneva 23-25 October 2002 and signed a declaration calling on WTO members to acknowledge that ‘agriculture cannot be treated in the same way as industrial sectors’ because farming ‘fulfils a multitude of functions’.

The other is via the adoption of stricter standards that then act as technical barriers to trade. Quarantine measures are an obvious case in point. They often add relatively large cost burdens to exporters from poorer countries because those countries do not have the same capability as developed countries to meet high standards (Wilson 2002). Numerous developing countries have cited examples of SPS measures of OECD countries that are already significantly hindering their exports (Mathews 2002). Another is the increasing use of geographical indications and traditional expressions aimed at differentiating rich-country products, which effectively reduces the demand for substitute products from other countries. A less obvious possibility is the restriction of imports of food products containing genetically modified organisms (GMOs). The direct short-term effects of a ban on GMOs could help exports from developing countries that choose not to adopt GMOs even though it harms those who have already adopted GMOs (Nielsen and Anderson 2001; Anderson and Yao 2004). But the indirect, longer-term, and potentially much larger effects are adverse for the world's poor, namely, the disincentive effect of such restrictions on investment in agricultural biotechnologies that could lower food prices and/or raise the nutritional attributes of foods available in developing countries.

Conclusions and policy implications

Low-income countries have much to gain from the WTO's Doha Round of trade negotiations. In particular, they have a strong vested interest in working together to push simultaneously for the freeing up of trade in both farm and textile products.¹³ Achieving that end will require some opening up of developing economies themselves as a *quid pro quo*, but that will benefit rather than hurt the poor in their own economies – especially if it includes reducing the relatively high levels of protection currently afforded many capital-intensive manufacturing industries and the service sector. And it will be politically easier to do in agriculture the more developed countries reform their farm policies and thereby raise the mean and lower the variance of international food prices.

Nonetheless, in some African countries at least, preparedness to move further down the reform path would be greater if mechanisms were introduced that increased perceived food security. How a country attains its optimal level of food security is a moot point. If a society would feel too food-insecure under *laissez faire*, bearing in mind the above considerations, then what needs to be determined is a sense of (a) its willingness to pay for more security by various means, and (b) the costs of those insurance measures. One such measure involves encouraging the holding of food stocks above those that would be commercially viable – a public good that is explicitly allowed for in Annex 2 of the WTO's Agreement on Agriculture. The optimal level of encouragement is that which boosts stocks so that the marginal social benefit in terms of food security equals the marginal social cost of that intervention. Costs are non-trivial, however. Storage and interest costs and the costs of spoilage and quality deterioration can amount to more than 20 per cent a year. The cost part of the calculation also would need to include the

¹³ Within agriculture, developing countries' interests in Doha agenda items align closely with those of the Cairns Group of non-subsidizing agricultural-exporting countries (Bjornskov and Lind 2002). See Cairns Group (2002) for its proposal on market access in the Doha Round.

risk of government failure if stocks were to be managed by an inefficient (or corrupt) public agency.

If greater domestic production capability was considered by society to be one of the desirable means of boosting food security (because of a perception that food import dependence is too unreliable), there are far less costly ways of achieving that than via protection from food imports. For example, boosting production alone, rather than also taxing consumption as with an import barrier, would be a lower-cost and less-trade-distortive means of achieving that end. Even more effective could be improvements in land tenure and more investment in the stocks of primary factors used in food production: agricultural research,¹⁴ rural human capital, and rural infrastructure (Otsuka 2002). That would provide an especially high payoff in situations where, as in so many countries, there has been gross under-investment in these activities in the past. Simultaneously, production could be boosted in many low-income countries simply by better clarifying and enforcing land rights, since they are a key source of collateral for securing loans for productive investments by farm households.

Where targeted programmes to boost the earning capacity of the poverty-stricken (for example, via basic education/training) are still not enough to boost their food security in the short term, targeted consumer subsidies to provide that core group with food staples are much less costly than general subsidies to all food consumers via price-depressing agricultural policies. Food aid that is targeted to just that group could be readily provided by the international community without depressing very much the prices received by farmers in recipient countries.¹⁵ And greater technical and economic cooperation in the areas of agricultural research, rural education and health, and rural infrastructure may be important co-requisites of trade policy reform if developing countries are to be convinced that they would gain unequivocally from the Doha round.

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¹⁴ For recent reviews of the substantial contribution that a further boost to agricultural research could do for poverty alleviation in low-income countries, see Hazell and Haddad (2001) and Ryan (2002).

¹⁵ If such subsidies are only paid in the towns and cities, however, this increases the risk of excessive, socially costly migration out of agriculture of the sort analysed by Harris and Todaro (1970).

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