

## How Can South Asia and Sub-Saharan Africa Gain From the Next WTO Round?

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### Abstract

*If South Asia and Sub-Saharan Africa are to become constructively engaged in the next attempt by World Trade Organization (WTO) members to liberalize trade multilaterally, they need to be convinced that there will be sufficient gains from trade reform to warrant the inevitable costs of negotiation and adjustment. This paper provides new estimates of the likely economic effects on their economies of further liberalizing world trade post-Uruguay Round. The results show that the developing countries of South Asia and Sub-Saharan Africa have much to gain from taking part in the next round. However, those gains will be far greater the more those countries 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.*

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## I. Introduction

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. 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 developing countries of South Asia and Sub-Saharan Africa in particular remain sceptical that a new round of negotiations will benefit them - notwithstanding the substantial focus on their concerns in the Doha Ministerial Declaration (WTO 2001d). So sensitive are those concerns that the Declaration does not even refer to a new round, referring instead to a Doha Development Agenda.

If those numerous developing countries in South Asia and Sub-Saharan Africa are to become constructively engaged in this next attempt to liberalize trade multilaterally, they need to be convinced that there will be sufficient gains from trade reform to warrant the inevitable costs of negotiation and adjustment. To that end, this paper provides new estimates of the likely economic effects on their economies of further liberalizing world trade after Uruguay Round implementation is completed.

The paper begins by describing briefly the global economy-wide model known as GTAP, and then using it to provide two base projections of the world economy in 2005. By that time all Uruguay Round commitments are scheduled to be fully implemented, and most of the commitments made by China and Taiwan in their WTO accession negotiations will have been implemented. It is also the nominated date for concluding this next round of negotiations. The first base projection assumes that none of the Uruguay Round commitments are implemented, while the second assumes all are fully implemented and China and Taiwan have joined the WTO. The comparison between these two scenarios gives a sense of the size of the contribution to structural change that is generated by economic growth generally as compared with trade policy reform in particular.

Having established that second 2005 projection of the global economy, we then use the GTAP model to examine the consequences of removing the distortions to merchandise trade that will still be in place in 2005 post-Uruguay Round. We know from documentation at the WTO (2001a) and from recent GTAP modelling efforts that there will still be much to gain globally from further reform. The effects are

considered first without and then with South Asia and Sub-Saharan Africa taking part. The purpose of the comparison between those two scenarios is to show the extent to which the economic benefits to those poor countries from the next WTO round depends on their own as distinct from other regions' liberalizations.

The final part of the paper discusses the limitations of the GTAP model in capturing all the gains from trade, and draws out implications for South Asia and Sub-Saharan African policy makers.

## **II. The Global, Economy-Wide GTAP Model and Database**

To examine the potential effects of trade liberalizations on South Asian and Sub-Saharan African countries, use is made of the projections version of the GTAP (Global Trade Analysis Project) applied general equilibrium model based in Purdue University (Hertel 1997). 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 (McDougall, Elbehri and Truoung 1998). Perfect competition and constant returns to scale are assumed for all sectors of each economy in the version used here (but see qualifications in the final section of the paper).

The model utilizes a sophisticated representation of consumer demands that allows for differences in both the price and income responsiveness of demand in different regions depending upon both the level of development of the region and the particular consumption patterns observed in that region.

On the supply-side, differences in rates of factor accumulation within and between countries interact with different sectoral factor intensities to drive Rybczynski-type changes in the sectoral composition of output. The GTAP production system distinguishes sectors by their intensities in four primary factors of production: agricultural land, labour time, physical capital, and human capital. Thus in a region where physical capital is accumulating rapidly, relative to other factors, we can expect the capital intensive sectors to expand at the expense of labour-intensive sectors.

The GTAP framework is built on a complete set of economic accounts for 1995 for each of 45 economies/regions spanning the world (see McDougall et al. 1998). It incorporates an exhaustive description of inter-industry linkages between the 50 sectors in the model. In addition to differences in intermediate input intensities,

import intensities are also permitted to vary across uses. Since much trade is in intermediate inputs, the distinction between sales to final consumers and sales to other firms can be quite important. Lowering the cost of imported goods to consumers is quite different from lowering the cost of intermediate inputs to domestic firms that may be competing with imports in the final product market.

As well, products are differentiated by place of production. The linkage between the different prices of a product is typically quite strong, but will depend on the degree of substitutability in consumption. In addition to matching up more effectively with reality, this approach has the advantage of permitting bilateral trade to be tracked, as opposed to simply reporting total exports net of imports.

Since it is cumbersome to conduct and present projections with the full 50-sector, 45-region GTAP data base, the present results have been aggregated up to a level which highlights sectors and countries of interest for this particular study. Unfortunately, the regional aggregation in GTAP allows only the largest African and Asian economies to be shown separately. The model is solved with GEMPACK software, described in Harrison and Pearson (1996).

### III. Projecting the Post-Uruguay Round World Economy to 2005

Version 4 of the GTAP model's data base is for 1995, the beginning of the Uruguay Round's implementation. Using estimates of the tariffs in place at the start and conclusion of Uruguay Round implementation (Table 1) and projections of growth in factor endowments, productivity and population to 2005 (based mainly on World Bank numbers -- see Table 2 in Anderson and Yao 2001), it is

**Table 1.** Import tariffs at the beginning (1995) and end (2005) of the Uruguay Round implementation period (%)

	Agriculture and food		Other primary products		Other manufactures	
	Pre-UR	Post-UR	Pre-UR	Post-UR	Pre-UR	Post-UR
All Advanced industrial countries	16	13	0	0	2	2
All developing countries	16	14	6	4	16	14
Northeast Asia	28	26	3	3	4	4
Southeast Asia	24	21	3	2	20	19
South Asia	40	32	10	7	59	31
Sub-Saharan Africa	13	10	2	2	13	9

Source: Francois and Strutt (1999).

**Table 2.** Cumulative percentage change in sectoral output at 1995 prices resulting from global economic growth, 1995 to 2005  
Assuming no Uruguay Round implementation or China WTO accession

	ANZ	NEAsia	SEAsia	China	India	OthSAsia	MidEast/ NAfrica	SAfrica	Other Sub- Sahara
Rice	10	39	57	68	39	40	38	49	57
Wheat	54	74	44	76	41	48	57	57	60
CerealGrain	52	74	77	71	36	41	60	50	64
VegFruitNuts	33	44	71	89	70	65	62	35	62
OilSeeds	50	76	79	82	75	78	72	69	87
OthCrops	44	68	80	75	75	77	78	60	111
PlantFibre	65	91	101	78	75	82	79	90	138
Livestocks	45	55	81	111	63	68	66	53	91
OthFoodProd	34	22	44	88	58	64	45	38	48
MeatDairyPrd	26	23	41	92	43	49	41	39	41
ForestryFish	37	16	8	68	45	41	28	31	11
EnergMineral	57	56	89	96	74	78	63	63	58
VegOilsFats	27	31	44	90	55	66	41	35	51
TextileWap	48	20	40	74	52	58	28	29	42
OtherManuf	44	33	90	121	67	74	51	41	44
Services	40	31	70	116	66	71	48	42	40

Source: Authors' model results.

possible for the GTAP model to project the world's economies forward. Table 2 summarizes the results of such a base-case projection scenario for 2005 on output in developing and other economies, from which a number of points can be made.

First, non-trivial structural changes necessarily accompany different rates of expansion in (a) relative factor endowments and productivities and (b) incomes as economies grow. In general, the growth of agricultural and other primary product output is slower than that for manufactures and services in virtually all countries.

Second, outputs of all sectors tend to grow slower in slower-growing economies. This is a direct result of the home bias that is so prevalent in every nation's economy: foreign products, even of fairly homogeneous items such as cereals, are an imperfect substitute for the domestically produced item because of such things as nationalistic preferences and transport costs. Hence relatively rapidly growing China is projected to increase its output of agricultural goods over the decade to 2005 at a faster rate than South Asia (whose economies are projected to grow slower than China's).

**Table 3.** Cumulative percentage change in sectoral output at 1995 prices resulting from global economic growth, 1995 to 2005  
Assuming full Uruguay Round implementation and accession to WTO by China

	ANZ	NEAsia	SEAsia	China	India	OthSAsia	MidEast/ NAfrica	SAfrica	Other SubSa- hara
Rice	16	39	60	69	37	44	34	53	58
Wheat	57	74	47	77	41	53	56	63	61
CerealGrain	71	75	74	72	37	44	59	51	66
VegFruitNuts	35	44	70	91	65	68	62	37	64
OilSeeds	101	76	74	85	81	98	71	79	87
OthCrops	42	69	79	77	78	94	78	63	117
PlantFibre	59	94	106	77	81	101	79	82	150
Livestocks	53	53	76	111	64	74	65	68	94
OthFoodProd	46	22	41	87	49	66	44	71	50
MeatDairyPrd	41	21	31	92	56	53	41	57	44
ForestryFish	38	16	7	69	45	40	29	31	14
EnergMineral	57	57	89	101	70	82	64	60	62
VegOilsFats	300	31	32	92	54	37	36	88	45
TextileWap	26	16	159	73	112	177	23	19	31
OtherManuf	41	34	87	135	60	116	52	44	45
Services	40	31	70	119	67	83	48	42	42

Source: Authors' model results.

Third, the proportional changes over the decade are very similar in the two scenarios (compare Tables 2(a) and 2(b)). This is a crucial point that is often not appreciated. The point is that as major as the Uruguay Round is, the impact of its decade-long implementation on the structure of the world's economies is small relative to the impact of normal market forces that accompany economic growth over such a longish period.

Fourth, within South Asia and Sub-Saharan Africa, perhaps the most significant structural change difference between the two scenarios has to do with textiles and clothing. The densely populated countries in South Asia are projected to have significantly bigger textile and clothing (and slightly bigger service) sectors because of the Uruguay Round reforms, but in India's case a smaller share of output from other manufactures. (This scenario assumes, however, that there is full implementation of the Uruguay Round's Agreement on Textiles and Clothing, without any offsetting safeguards measures being implemented at the end of the

reform period in late 2004; and that reform of China's quota-restricted trade in these products is not complete until 2008 rather than 2005.) In more agrarian and less densely populated Sub-Saharan Africa, by contrast, the textile and clothing industries would grow somewhat slower following Uruguay Round implementation as that region instead exploits new market opportunities for its more-competitive primary industries.

Fifth, notice that the service sector's expansion is shown to be not very different under the two scenarios in proportional terms (although in dollar terms that huge sector would be significantly bigger under freer trade). This is because we assume, like most of our predecessor modellers, that the General Agreement on Trade in Services (GATS) will deliver no significant reforms by 2004.

Changes in consumption also accompany economic growth and policy reforms, and it is the difference between them and the production changes that determine the changes in sectoral trade balances. The latter can be summarized in terms of the self sufficiency ratio (the ratio of production over consumption), where it should be kept in mind that the sum of the sectoral trade balance changes is set exogenously by the modellers at zero (that is, no running up or running down the aggregate balance of trade over time). The results show a remarkable degree of stability as between the two projection scenarios for developing countries. The implementation of the Uruguay Round is not projected to cause major changes in agricultural self-sufficiency, for example. In fact the only significant differences between the scenarios are in manufactures: South Asia will specialize more in textiles and clothing and less in other manufactures because of the Uruguay Round, while Sub-Saharan Africa will specialize more in primary products and less in industrial goods (see Table 4 of Anderson and Yao 2001).

#### **IV. Effects of Removing Remaining Distortions to Goods Trade in 2005**

Having established the post-Uruguay Round base-case projection scenario for 2005, we examine how different the world would look then if the remaining import tariffs on all goods, and all agricultural producer and export subsidies, were to be removed. This thought experiment is done in two stages: first, with all except South Asian and Sub-Saharan African distortions removed, and then with those developing countries' policies abolished as well.

If all regions (other than South Asia and Sub-Sahara) were to remove their trade

**Table 4.** Percentage difference in sectoral output when all merchandise trade distortions remaining post-UruguayRound are removed, 2005  
In all regions except South Asia and Sub-Saharan Africa

	ANZ	NEAsia	SEAsia	China	India	OthSAsia	MidEast/ Nafrika	SAfrica	Other Sub -Sahara
Rice	19	-9	-12	3	12	9	6	6	1
Wheat	103	-66	-16	15	6	6	11	18	2
CerealGrain	10	-52	-12	14	1	1	2	114	85
VegFruitNuts	-7	1	1	1	1	1	-1	1	0
OilSeeds	-5	-15	14	45	-1	2	0	2	3
OthCrops	84	-8	5	-4	-2	1	3	43	-8
PlantFibre	-21	32	9	35	-2	0	81	-12	11
Livestocks	28	-13	-5	1	0	1	12	28	15
OthFoodProd	-16	15	4	2	-2	29	-1	28	2
MeatDairyPrd	67	-6	-23	55	1	3	3	38	14
ForestryFish	-1	0	2	1	0	1	1	2	0
EnergMineral	-1	0	2	8	1	2	2	-2	0
VegOilsFats	-21	112	43	-14	-4	-5	-4	0	0
TextileWap	-17	35	-24	70	-10	-16	14	-8	-2
OtherManuf	-1	4	35	6	3	11	7	-7	0
Services	1	1	-2	2	0	0	2	0	0

Source: Authors' model results.

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. For example, Table 3(a) shows Australia and New Zealand would expand their temperate crop and livestock output as the agricultural protectionist countries of East Asia contracted theirs. It is the comparison between Tables 3(a) and 3(b) for South Asia and Sub-Saharan Africa that are of particular interest in this paper, however.

The first point to note is that South Asia and Sub-Saharan Africa 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 3(a)). In particular, agriculture would expand at the expense of labour-intensive manufacturing in those developing countries.

Second, South Asia would expand its agricultural output more if it also undertakes reforms itself than if it stands aside from reform. Its textile/clothing

**Table 5.** Percentage difference in sectoral output when all merchandise trade distortions remaining post-UruguayRound are removed, 2005  
In all regions including South Asia and Sub-Saharan Africa

	ANZ	NEAsia	SEAsia	China	India	OthSAsia	MidEast/ NAfrica	SAfrica	Other SubSa- hara
Rice	5	-9	-12	2	19	18	-1	4	-1
Wheat	101	-66	-15	14	15	7	10	-3	-6
CerealGrain	10	-51	-11	14	1	2	2	171	90
VegFruitNuts	-7	1	2	1	0	-3	-1	1	9
OilSeeds	-5	-14	22	45	0	7	-1	-5	-1
OthCrops	82	-6	-1	-2	-2	-4	1	61	9
PlantFibre	-19	30	12	21	-2	-1	85	-10	-1
Livestocks	29	-13	-5	3	0	6	10	-6	54
OthFoodProd	-17	16	3	1	1	38	0	22	3
MeatDairyPrd	70	-5	-23	54	2	8	3	-6	0
ForestryFish	-2	0	2	1	0	3	2	7	4
EnergMineral	-1	1	0	4	6	3	2	29	7
VegOilsFats	-20	106	67	-13	-15	-17	-4	0	2
TextileWap	-22	36	-2	56	5	29	8	1	-13
OtherManuf	0	2	35	-2	19	60	9	-8	-5
Services	1	1	-2	1	2	4	2	1	0

Source: Authors' model results.

output, by contrast, would shrink a little if it stands aside from reform but would expand if it joins in. The latter expansion would not be at the expense of other manufactured output, though. On the contrary, a comparison between Tables 3(a) and 3(b) reveals that industrial and service sector output generally also is greater in that region when it participates in reform. That is, the removal of South Asia's own distortionary policies expands all sectors of its economies, even if the manufacturing sector is the one to grow fastest.

And third, the output differences between the two reform scenarios for Sub-Saharan Africa suggest this region too would enjoy faster growth in output if it freed up its own trade. For South Africa, the biggest boost would be in mineral and energy at the expense of livestock products while for the rest of Sub-Saharan Africa primary products expand slightly at the expense of manufactures.

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. The net effects are seen by comparing Tables 4(a) and 4(b). The

**Table 6.** Changes in sectoral trade balances when all merchandise trade distortions remaining post-Uruguay Round are removed, 2005  
Reform in all regions except South Asia and Sub-Saharan Africa

	ANZ	NEAsia	SEAsia	China	India	OthSA- sia	MidEast/ NAfrica	SAfrica	Other SubSa- hara
Rice	74	-413	-2,517	321	1,897	397	-110	-54	28
Wheat	4,628	-14,709	-921	2,284	671	48	2,040	-50	44
CerealGrain	137	-44,341	-3,150	1,517	50	1	111	1,016	1,815
VegFruitNuts	-75	-348	-281	285	67	-17	-103	-114	-8
OilSeeds	-40	-579	-213	3,680	119	39	-51	-79	48
OthCrops	4,306	-2,751	-233	-1,265	28	-108	-150	2,427	-2,068
PlantFibre	-164	-1,745	10	-2,815	30	-70	3,720	-106	589
Livestocks	-100	-281	70	51	6	4	1,316	21	365
OthFoodProd	-6,734	23,172	1,291	-10,412	-494	3,232	-3,025	5,062	339
MeatDairyPrd	16,749	-30,011	-3,727	11,242	153	130	-2	2,954	569
ForestryFish	-60	-734	-1,583	-215	0	-25	-28	-4	-54
EnergMineral	-365	-7,505	-8,506	6,491	185	-297	-853	-436	-198
VegOilsFats	-702	1,921	3,988	-2,412	-186	-70	-583	-145	-22
TextileWap	-1,844	63,044	-19,748	39,013	-7,159	-6,315	-227	-498	-143
OtherManuf	-13,019	45,176	49,005	-40,500	4,552	3,484	-15,432	-8,066	-469
Services	-2,792	-29,896	-13,483	-7,266	80	-433	13,377	-1,927	-836

Source: Authors' model results.

key point to draw from them is that net food imports are less for South Asia and Sub-Saharan Africa following the removal of remaining trade barriers in 2005, and more so when those developing countries participate in the reform.

Table 5 summarizes the estimated effects on economic welfare without and with South Asia and Sub-Saharan Africa participating in the removal of remaining distortions post-Uruguay Round. The global welfare gain is well over US\$200 billion per year, and of course more if all countries participate. South Asia's gains are hugely greater if it participates than if it does not: \$14 billion per year compared with just one-tenth of that amount if it does not -- despite the fact that South Asia's own liberalization would turn the international terms of trade against itself. The reason is that the region's resources are used so much more efficiently when its own distortionary policy interventions are removed.

Sub-Saharan Africa's gain when it reforms is less than 40 per cent of South Asia's gain. This partly reflects the fact that the South Asian economies in aggregate are nearly twice as large as the whole of Sub-Saharan Africa. When

**Table 7.** Changes in sectoral trade balances when all merchandise trade distortions remaining post-UruguayRound are removed, 2005  
Reform in all regions including South Asia and Sub-Saharan Africa

	ANZ	NEAsia	SEAsia	China	India	OthSA- sia	Mid- East/ NAfrica	SAfrica	Other SubSa- hara
Rice	32	-438	-2,853	128	2,565	689	-139	-82	-54
Wheat	4,535	-14,709	-1,023	2,297	1,736	163	1,830	-152	-252
CerealGrain	134	-44,362	-3,333	1,500	67	0	78	1,681	1,911
VegFruitNuts	-73	-354	-151	314	-118	-590	-349	-66	881
OilSeeds	-39	-591	-299	3,726	224	-175	-64	-62	68
OthCrops	4,199	-2,721	-751	-1,323	-647	-2,001	-309	3,609	1,704
PlantFibre	-157	-1,688	43	-2,619	-244	-782	3,968	-73	158
Livestocks	-151	-277	68	40	-3	7	1,045	73	1,146
OthFoodProd	-6,875	22,670	1,251	-10,342	195	3,530	-2,320	4,976	230
MeatDairyPrd	17,456	-30,056	-3,625	11,336	458	36	-49	-480	-239
ForestryFish	-69	-707	-1,651	-217	-234	-148	-71	29	270
EnergMineral	-344	-7,688	-8,743	6,339	-410	-3,381	-3,168	6,760	4,442
VegOilsFats	-724	1,955	6,210	-2,398	-1,292	-585	-616	-125	-46
TextileWap	-1,917	59,749	-20,410	34,541	629	3,706	-2,227	-605	-1,490
OtherManuf	-13,258	48,765	49,172	-36,399	-5,068	1,698	-9,386	-14,086	-8,054
Services	-2,749	-29,548	-13,904	-6,926	2,142	-2,168	11,778	-1,398	-676

Source: Authors' model results.

South Africa is disaggregated from Other Sub-Saharan Africa, however, then as shown in Table 5 it appears Other Sub-Saharan Africa in aggregate does not gain any more from participating in than from standing aside from further trade liberalization. The reason is clear from Table 5: the very considerable gains from more efficient resource use are offset by an adverse change in its terms of trade when all of those countries expand their primary product exports simultaneously.

Does that mean the economy of each Sub-Saharan African country would be better off if its government did not participating in the next WTO round? 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).<sup>1</sup> 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

**Table 8.** Economic welfare effects of all merchandise trade distortions remaining post-Uruguay Round being removed (a) without and (b) with South Asia and Sub-Saharan Africa participating, 2005(US\$ million per year in 1995 dollars)

	(a) Without South Asia/SS Africa			(b) With South Asia/SS Africa		
	Resource use efficiency	Terms of trade	TOTAL	Resource use efficiency	Terms of trade	TOTAL
ANZ	975	5,645	6,451	1,016	5,852	6,702
NEAsia	86,290	10,110	93,265	86,635	11,497	95,172
SEAsia	18,402	-8,505	9,359	18,710	-7,233	10,934
China	19,144	-10,634	8,734	18,619	-9,913	9,053
India	570	315	806	12,596	-4,808	7,414
OtherSAsia	353	342	578	10,452	-3,128	6,245
NthAmerica	7,422	10,099	16,852	8,028	13,150	20,476
Mexico	2,174	-1,799	897	2,240	-1,927	867
SouthernCone	15,956	-3,089	12,042	15,767	-3,111	11,816
OtherLatinAm	1,969	3,507	5,341	2,009	3,690	5,562
WEurope	55,227	-8,518	47,359	55,712	-6,401	50,130
EEFSU	2,848	5,718	8,491	2,935	5,985	8,860
MidEastNAfr	8,956	-5,202	3,146	9,642	-3,426	5,565
SthAfrica	-425	2,159	1,726	3,515	1,196	4,589
OthSubSahara	-147	728	577	1,198	-715	520
Rest of World	6,934	-1,271	4,726	6,976	-1,257	4,748
TOTAL	226,648	-394	220,348	256,052	-550	248,653

Source: Authors' model results.

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. 2)

Notice that other parts of the world gain a little more when all regions

participate, in their case because of improved terms of trade when South Asia and Sub-Saharan Africa take part.

## V. Qualifications and Policy Implications

Of course net national economic welfare is not the only criterion that drives governments to act as they do. Indeed until recently, it may not have been even a major one. However, it is steadily becoming more dominant, for at least three reasons. One is the rapid globalization of the world that technological and economic policy changes have stimulated over the past decade or so, a major effect of which is that economies will be penalized ever-more rapidly and severely through capital flight for bad economic governance.

Another reason is the broader mandate of the WTO, which makes it easier now than before the Uruguay Round for developing countries to engage profitably in cross-sectoral exchange of market access commitments, including in services trade.

A third reason is that it is becoming better understood that 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.

While measuring distortions to services trade and mark-ups by imperfectly competitive firms is fraught with difficulty, initial attempts are beginning to bear fruit. A new 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 (\$192 billion) in the Francois study compares with the estimate reported in Table 5 (where no imperfect competition is assumed) of \$249 billion from totally removing all tariffs on merchandise trade. The distribution of those gains to the developing countries focused on in our study is very similar to that reported in Table 5: about 3 per cent is attributed to India and 2 per cent to Sub-Saharan Africa.

The key point to draw from this comparison is that the gains from trade reported

in the previous section 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 Sub-Saharan Africa. 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 Sub-Saharan Africa, 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 characterised 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 last point, a recent empirical study was undertaken by Francois and Wooten (2000). 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.

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 (2001, Ch. 6) conducted a study very similar to the one reported in Section 3 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 \$312 billion per year by 2015, compared with the present study's estimate of \$249 billion as early as 2005 when the world economy would be somewhat smaller). 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, the developing countries of South Asia and Sub-Saharan Africa have much to gain 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.

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