

AGRICULTURAL TRADE LIBERALIZATION:

Implications for Indian Ocean Rim Countries

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MINISTER'S FOREWORD

Professor Kym Anderson has produced an important study that looks at the benefits and costs associated with the liberalisation of agricultural trade among Indian Ocean Rim Association for Regional Cooperation (IOR-ARC) member countries.

This study is particularly timely following the decision at the WTO Ministerial Conference in Doha in November 2001 to launch a new comprehensive round of multilateral trade negotiations, the Doha Development Agenda. I represented Australia in Doha and was very pleased that, in coalition with our Cairns Group colleagues and with the support of other developing countries, we achieved a strong mandate in the Declaration to pursue far-reaching reform of agricultural trade rules.

In this report, Professor Anderson shows that IOR-ARC developing countries have much to gain if trade in both farm and textile products were liberalised. Calling for reforms to the agricultural support programs utilised by some developed countries is one priority but Professor Anderson argues that developing countries will also have to implement structural reforms and open up their domestic economies to secure the greatest gains. He also argues that reforms are needed to address the generous levels of protection currently afforded to the manufacturing and services sector in some developing economies.

Professor Anderson's economic modelling has shown that these changes will benefit rather than hurt IOR-ARC developing economies. In particular, liberalisation will assist developing countries in attracting foreign investment for infrastructure projects in key areas like rural transport and communications which will serve to boost the agricultural sector. Professor Anderson analyses the key issues, benefits and costs to IOR-ARC developing countries in detail and concludes by arguing that developing countries would be more easily convinced of the merits of free trade in agriculture if trade policy reforms were accompanied by greater technical and economic cooperation.

I welcome this study by Professor Kym Anderson and believe it will provide a valuable contribution to IOR-ARC's work on trade and investment liberalisation and facilitation. I hope you find it a useful account of the implications agricultural trade liberalisation holds for IOR-ARC countries, and that it will assist in convincing IOR-ARC members of the economic benefits that free trade in agriculture could realise.

Mark Vaile
Minister for Trade
Deputy Leader of the National Party



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ACRONYMS

ACP	Africa, Caribbean and Pacific (members of the former Lome Convention and now the Cotonou Agreement with the EU)
ADB	Asian Development Bank
AFTA	ASEAN Free Trade Area
AMS	Aggregate Measure of Support
ANZCERTA	Australia New Zealand Closer Economic Relations Trade Agreement
APEC	Asia Pacific Economic Cooperation
ASEAN	Association of South East Asian Nations
ATC	Agreement on Textiles and Clothing
CAP	Common Agricultural Policies (of the EU)
COMESA	Common Market for Eastern and Southern Africa
DSB	Dispute Settlement Body
EAC	East African Cooperation
EBA	Everything but arms (the EU's preference proposal for LDCs)
ESCAP	Economic and Social Commission for Asia and the Pacific
EU	European Union
FTA	Free Trade Area
GATT	General Agreement on Tariffs and Trade
GDP	Gross domestic product
GNI	Gross national income
GSP	Generalized System of Preferences
IMF	International Monetary Fund
IOR-ARC	Indian Ocean Rim Association for Regional Cooperation
ITC	International Trade Centre
LDCs	Least Developed Countries
MFA	Multilateral Fibre Arrangement
MFN	Most Favoured Nation

ACRONYMS

MTN	Multilateral Trade Negotiations
OECD	Organisation for Economic Cooperation and Development
PPP	Purchasing power parity
PECC	Pacific Economic Cooperation Committee
RIA	Regional integration agreement
SAARC	South Asian Association for Regional Cooperation
SACU	Southern African Customs Union (Botswana, Namibia, South Africa and Swaziland)
SADC	Southern African Development Community
SAPTA	SAARC's Preferential Trading Arrangement
S&D	Special and differential (treatment for developing countries in WTO)
SOE	State-Owned Enterprise
SPS	Sanitary and Phytosanitary (Agreement in the WTO)
STE	State Trading Enterprises
TRIMs	Trade-Related Investment Measures (Agreement)
TRIPs	Trade-Related Intellectual Property (Agreement)
TPRM	Trade Policy Review Mechanism
TRQ	Tariff-Rate Quotas
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
USA	United States of America
USITC	United States International Trade Commission
VAT	Value-Added Tax
VER	'Voluntary' Export Restraint
WCO	World Customs Organization
WTO	World Trade Organization

Source (and see also for a glossary of trade policy terms): Goode (2002).

The purpose of this report, prepared at the request of Australia's Department of Foreign Affairs and Trade (DFAT), is to contribute to policy dialogue among member countries of the Indian Ocean Rim Association for Regional Cooperation (IOR-ARC). Those countries are: Australia, Bangladesh, India, Indonesia, Iran, Kenya, Madagascar, Malaysia, Mauritius, Mozambique, Oman, Seychelles, Singapore, South Africa, Sri Lanka, Tanzania, Thailand, United Arab Emirates, and Yemen. As well, China, Egypt, France, Japan and the United Kingdom are affiliated to IOR-ARC as Dialogue Partners. Some other countries on the Indian Ocean rim and elsewhere are included in a few of the tables simply for comparative purposes.

The author is grateful to Shunli Yao for generating modelling results for a joint paper on which the first half of Chapter 6 draws, to David Norman, Lona Fowdur and Magda Vacariu for research assistance, and to DFAT for financial support and for helpful comments on an earlier draft. The views expressed are the author's alone, and not necessarily those of the Australian Government.



Following an aborted attempt in Seattle in late 1999, the Ministerial Meeting of the World Trade Organization (WTO) in Doha in November 2001 launched the next comprehensive round of multilateral trade negotiations. The new round provides a major opportunity for developing countries, because they continue to face relatively high barriers to trading their way to higher incomes. Yet developing countries were divided on a major agenda item at that Ministerial, namely, further liberalization of trade in agricultural products. Only countries with a strong comparative advantage in those agricultural products that are currently protected in developed countries were overtly supportive.

Several reasons for the lack of developing country support for agricultural trade reform have been suggested. Specifically, those countries fear

- they would not be competitive enough to take advantage of new market opportunities abroad,
- their tariff preferences in key markets would erode, and
- their food security would be threatened.

While these concerns may seem reasonable, they become less so the closer they are examined. This report examines them in turn from the viewpoint of the poor agrarian economies on the Indian Ocean rim (IOR), particularly those in South Asia and Sub-Saharan Africa.

An examination of the changing structure and growth performance of the IOR economies reveals a wide diversity within the region: from moderately high to very low per capita incomes, from natural resource abundance per worker to very densely populated countries, from states with very open to quite closed policy regimes, and from rapidly growing to almost stagnant economies. Standard trade and development theory and the experiences of earlier-developed economies provide insights into the IOR developing countries' likely export (and hence market access negotiating) interests in the early 21st century. Those interests clearly include agriculture and, particularly in the most densely populated economies of South Asia, textiles and clothing.

Results from a global economy-wide model reveal the empirical importance of barriers to trade in agricultural and textile products relative to those for all other merchandise. They show that even if all the Uruguay Round commitments to reform are fully implemented by the end of 2004, there will remain considerable scope for further global gains from trade liberalization – and the majority of those potential gains are in agriculture (even though that sector contributes barely one-tenth of global production and trade), followed by textiles and clothing.

Even when attention is focused on the interests of just the IOR developing countries, the model results suggest that agriculture would provide more than one-third of those countries' gains from a freeing of all merchandise trade globally in 2005. Their interests in agricultural trade reform are not just confined to the policies of developed countries, however. On the contrary, much of their gains would come from agricultural liberalization in developing countries. Indeed a key reason why agricultural products are not

prominent in the export mix of more IOR developing countries has to do with their own anti-agricultural policies and the food import barriers of their near neighbours. That is, poor agrarian economies would be much more able to take advantage of new agricultural market opportunities abroad if they first liberalized their own markets.

The new WTO round provides a low-cost way of undertaking such reform, for at least three reasons. 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 commitments, as required under WTO, its government is better able to resist the temptation to give in to political pressure to reverse that reform.

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.

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 and/or textile products. That first option is currently before them in at least two forms: through expanding sub-regional free-trade areas, and through some extensions to tariff preferences to developing countries. In particular, countries defined by the United Nations as least-developed may get more preferential access to developed country markets under the proposal by the European Union to provide them duty-free and quota-free access to the EU for 'everything but arms' (EBA).

An examination of the EU's long-standing preferences to former colonies in Asia, the Caribbean and the Pacific (ACP), and its new EBA proposal, reveals numerous qualifications that suggest the benefits to those receiving preferences do not come without costs. An obvious concern is the welfare of developing countries not included in such schemes. In one extreme case – the EU's banana import regime – those excluded lose as much as those included, so the net benefit to developing countries is zero, or negative if EU consumers are less inclined to give aid to developing countries because of the scheme.

There is an even larger cost for developing countries, however. It is that such schemes split the developing country group within the WTO membership: the 48 LDCs would become advocates *for* rather than *against* the continuation of MFN tariff peaks for agriculture and textiles – nearly halving the number of WTO members negotiating for their reduction. Even if reductions in agricultural and textile tariffs would

help LDCs much less than they would help other developing countries, the gains to industrial country consumers would be more than sufficient to allow them to increase their aid to LDCs to compensate for any loss of income from preference erosion. That is, trade can be worse than direct aid if the trade is preferential and thereby distortionary.

What about the virtues of sub-regional preferential or free trade agreements within the IOR? Several already exist, and discussions are under way to deepen them. Under ideal conditions they can be stepping stones to freer global trade. However in practice they have been, and are likely to continue to be, of little help at best. Partly this is because the membership typically accounts for only a small proportion of each member's total trade, not least because of an absence of complementarity in trade within the sub-region (each is exporting similar products to its neighbours). Also commonly contributing is an unwillingness to reduce barriers to trade in numerous 'sensitive' products. Given those poor prospects, IOR developing countries in South Asia and Sub-Saharan Africa are likely to get a higher return from directing their trade negotiators' attention toward securing better access to the potentially far more economically important major markets outside their sub-region.

Taking part in a multilateral trade negotiation involves responding to requests to open up markets for products of export interest to one's trading partners. Such requests from trading partners to expand imports are consistent with domestic economic growth objectives, because resources will then move from protected to more-competitive sectors. Such opening up is likely to boost agricultural output, particularly in Sub-Saharan Africa. In the case of South Asia, labour-intensive manufactures are likely to grow even more than farm output if government interventions there were to be reduced across the board.

The latter two propositions are supported by new empirical results generated using a well-received global economy-wide empirical model (the GTAP model) to examine the likely effects of a further round of multilateral trade liberalization following the completion of implementing the Uruguay Round by end-2004. Results show 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 be part of the next WTO round. But South Asia would expand its agricultural output more if it also undertakes reforms itself rather than standing aside in the next round. Its textile/clothing 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, 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.

The results for Sub-Saharan Africa suggest this region too would enjoy faster growth in manufactures than in agriculture if it freed up its own trade. For South Africa that industrial boost would be in less labour-intensive products at the expense of textiles and clothing, while for the rest of Sub-Saharan Africa the opposite is true.

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 key result 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 IOR developing countries participate in the reform.

What impact would such reform have on economic welfare in the region? South Asia's gains are much greater if it participates than if it does not: \$14 billion per year compared with just \$1.6 billion 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 only 40 per cent of South Asia's gain.

When South Africa is disaggregated from Other Sub-Saharan Africa, however, it appears Other Sub-Saharan Africa in aggregate does not gain any more from participating in further trade liberalization than from standing aside. The reason is that the very considerable gains from more efficient resource use are offset by an adverse terms of trade change when all of those countries expand their agricultural and mineral exports simultaneously.

This does not mean the economy of each Sub-Saharan African country would be better off if its government did not participate in the next WTO round. On the contrary, their economy's welfare would be even worse if their government did not participate, for several reasons. First, 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). 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 likelihood 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 and economic assistance commitments.

Net national economic welfare is not the only criterion that drives governments to act as they do. Until recently, it may not have been even a major one. However, it is steadily becoming more dominant, for at least three reasons. First, the rapid globalization over the past decade or so means that economies will be penalized ever-more rapidly and severely through capital flight for bad economic governance. Second, the broader mandate of the WTO 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. And third, there are two other important source of gains from trade reform that are not captured in the above results, namely, pro-competitive gains and dynamic gains. New modelling results suggest that when those considerations are properly included, the welfare gains from trade reform may be far greater than previous estimates suggest.

However, more needs to be addressed than just aggregate national economic welfare. Also important is the way the national benefits and costs of policy changes are distributed across the various groups making up each society, and 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, many of whom reside in IOR developing countries.

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.

In addition to raising the average level of income in a country, what does trade liberalization do to the incomes of poor households in particular (and to national food self-sufficiency)? The impact of trade reform on income distribution and thereby on poverty is not always easy to ascertain, but at least two points are worth stressing. First, eliminating agricultural policy distortions in developed countries would raise international prices for agricultural products, which would stimulate production in non-protected countries. That suggests food self-sufficiency would rise in those developing countries that transmit that price rise to their domestic market. Second, since a high proportion of the poorest households in developing 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 developing 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 developing economies would be net food buyers at risk of becoming more food-insecure as a result of rising domestic food prices following trade liberalization. Targeted programs to boost their earning capacity (eg basic education/training) are an efficient way to boost their food security. Where that fails, targeted 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.

In conclusion, IOR developing countries have much to gain from the next WTO 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. Achieving that end will require some opening up of the IOR developing economies themselves as a quid pro quo, but that will benefit rather than hurt 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. Nonetheless, in some countries at least, preparedness to move further down the reform path would be greater if mechanisms were introduced that increased perceived food security and boosted investments in rural transport, communication and other infrastructures. Greater technical and economic cooperation is thus an essential co-requisite of trade policy reform if the poorer countries of the region are to be convinced that they would gain unequivocally from that process.



As the member countries of the World Trade Organization (WTO) prepare for the next comprehensive round of multilateral trade negotiations (MTNs) that were launched in Doha in November 2001, the developing countries among them are divided on a range of issues. One key issue relates to the extent to which developing countries have so far benefited from the Uruguay Round (UR) reforms, most notably the commitments to liberalize trade in agricultural and textile products. UR agreements on those two sectors will not be fully implemented until the end of 2004, yet that is also when the new round of negotiations are scheduled to conclude. The reluctance of poorer countries to incur the costs of negotiating another round, while still in the midst of adjusting to commitments made in the previous round, is understandable. Presumably their enthusiasm to participate will be greater the more they are convinced the new agenda will serve their interests.

Many poorer countries are especially uncertain about whether or not to support the Cairns Group¹ and United States' objective of further liberalizing international agricultural trade in the next MTN round. Such reform is favoured by those with a strong comparative advantage in the agricultural products that are currently highly protected in developed countries. However, for a large proportion of developing countries, those protected products do not feature prominently in their exports. Indeed the leaders of numerous countries in Sub-Saharan Africa and South Asia fear that further cuts to agricultural protectionism in OECD countries would leave them no better off or, worse, would reduce their national economic welfare. They therefore have tended in the past either to let others fight agricultural protectionism or to actively oppose that call for reform.

Are the economic interests of poor countries in South Asia and Sub-Saharan Africa likely to be helped or harmed by further agricultural reform, both absolutely and relative to liberalization of trade in textile products? This report addresses that question as it affects the poorer countries on the Indian Ocean rim (IOR) -- a region that is not unrepresentative of the vast diversity of economies outside the North Atlantic and North Pacific zones of prosperity. It therefore provides a useful case study for both rich and poor WTO members elsewhere, in addition to contributing to policy debate within the IOR region itself. In the process the report explores the scope for this issue being able to contribute to the spirit of cooperation that is explicitly part of the mandate of the Indian Ocean Rim Association for Regional Cooperation (IOR-ARC).²

¹ The Cairns Group formed after its first meeting in Cairns, Australia in 1986 with the single objective of ensuring agricultural trade liberalization remained high on the agenda of the Uruguay Round and subsequent multilateral trade negotiations. Its membership comprises the following WTO members: Argentina, Australia, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Fiji, Guatemala, Indonesia, Malaysia, New Zealand, Paraguay, Philippines, South Africa, Thailand, and Uruguay. See <http://www.cairnsgroup.org>

² The membership of the IOR-ARC involves most of the countries on the Indian Ocean rim, the exceptions being Burma, the Maldives, Pakistan and Somalia. Specifically the group includes: Australia, Bangladesh, India, Indonesia, Iran, Kenya, Madagascar, Malaysia, Mauritius, Mozambique, Oman, Seychelles, Singapore, South Africa, Sri Lanka, Tanzania, Thailand, United Arab Emirates, Yemen. As well, China, Egypt, France, Japan and the United Kingdom are affiliated to IOR-ARC as Dialogue Partners.

To set the scene, chapter 2 of the report begins by summarizing the changing structure and growth performance of the economies on the Indian Ocean rim. It demonstrates the wide diversity within the region, reflective of the diversity within the developing country membership of the WTO: from moderately high to very low per capita incomes, from natural resource abundance per worker to very densely populated countries, from states with very open to quite closed policy regimes, and hence from rapidly growing to almost stagnant economies.

Drawing on standard trade and development theory and experience, as summarized in Appendix 1, and bearing in mind their current policies in place domestically, chapter 2 then examines the IOR developing countries' likely export (and hence market access negotiating) interests in the early 21st century. Those interests clearly include agriculture and, to a somewhat lesser extent, textiles and clothing.

Results from a global economy-wide model, showing the empirical importance of barriers to trade in agricultural and textile products relative to those for all other merchandise, also are presented in Chapter 2. They show that even if all the Uruguay Round commitments to reform are fully implemented by the end of 2004, there will remain considerable scope for further global gains from trade liberalization – and the majority of those potential gains are in agriculture (even though that sector contributes barely one-tenth of global production and trade), followed by textiles and clothing. Even when attention is focused on the interests of just the IOR developing countries, the model results suggest that agriculture would provide more than one-third of those countries' gains from a freeing of all merchandise trade globally in 2005.

A necessary condition for IOR countries to be successful in securing greater market access abroad for their exports in the next MTN round is to reciprocate in the form of providing trading partners with greater access to their own markets. For the more protective developing countries in the region, this is not something that their leaders have been very willing to do in the past. However, the political calculus is changing rapidly with the spread of globalization. Chapter 3 argues that the net political benefits from market liberalization versus remaining protectionist and interventionist are rising. It reviews those forces of globalization and draws out their implications for the development strategies of IOR countries. That review makes clear that the choices are becoming starker than in the past: the rapid falls in the costs of doing business across national boundaries mean that the rewards from opening one's own economy to foreign trade and investment flows have risen, and so too have the costs of not adopting and maintaining an open, stable and transparent set of economic policies.

Given that those globalization forces are encouraging governments of IOR developing economies to become more actively involved in the next WTO Round of multilateral trade negotiations (MTNs), what should be their priorities? Numerous developing countries currently get some preferential access to developed country markets, and countries defined by the United Nations as least-developed will get even more under the proposal sponsored by the European Union to provide them duty- and quota-free access to developed-country markets for 'everything but arms'. Nonetheless, after assessing those and other preferential trade arrangements, chapter 4 concludes that it is in the interests of IOR developing countries

to join forces with other developing countries in seeking further MFN liberalization of trade in agricultural and textile products, rather than having their trade negotiators' attention diverted toward regional or other preferential trade arrangements.

Taking part in a multilateral trade negotiation involves more than seeking market access abroad. It also involves reciprocating by opening up one's own markets for products exported by one's trading partners. Chapter 5 argues that such requests from trading partners are consistent with not only import growth but also domestic economic growth, as resources move from protected to more-competitive sectors. In particular, it is argued that such opening up is likely to boost agricultural output and aggregate economic welfare substantially, especially in Sub-Saharan Africa. In the case of densely populated South Asia, labour-intensive manufactures are likely to grow even more than farm output if government interventions there are reduced across the board.

To test those propositions, Chapter 6 uses a well-received global economy-wide empirical model (the GTAP model, summarized in Appendix 2) to examine the likely effects of a further round of multilateral trade liberalization following the completion of implementing the Uruguay Round by end-2004. It does so first without and then with the IOR developing countries of South Asia and Sub-Saharan Africa participating, to demonstrate the extent to which the economic benefits to those countries depend on their own active participation in the reform.

In addition to aggregate economic welfare, governments are also concerned at the way national benefits and costs of policy changes are distributed across the various groups making up their society. The impact of reform on food price variability and other aspects of food security, especially as it affects the poorest households, are of particular concern. They are the focus of chapter 7, where it is suggested that – far from raising food insecurity – trade liberalization is likely to reduce it for the vast majority of the world's poor, many of whom reside in IOR developing countries.

The report concludes in chapter 8 with a drawing together of what the findings imply for IOR developing countries as they move into the next WTO round of trade negotiations. It suggests they have a strong vested interest in working together to push simultaneously for the freeing up of trade in both agricultural and textile products. Achieving that end will require some opening up of the IOR developing economies themselves as a quid pro quo. However, that will benefit rather than hurt their own economies, especially if it includes reducing the relatively high levels of protection currently afforded many capital-intensive manufacturing industries and the service sectors. Nonetheless, in some countries at least, their preparedness to move further down the reform path would be greater if mechanisms were introduced that increase their sense of food security and help them build the necessary infrastructure to make the most of the new market opportunities that would emerge. That is, greater foreign aid may be a necessary co-requisite of trade policy reform if the poorer countries of the region are to be convinced that they would gain unequivocally from that process

2: AGRICULTURE AND ECONOMIC GROWTH IN IOR COUNTRIES



By way of background, the first two sections of this chapter review the recent growth performance and structural changes of IOR economies. As with the rest of this report, the main emphasis is on the poorer developing countries of South Asia and Sub-Saharan Africa, and on the agricultural sector (although always in an economy-wide context). The third section of the chapter speculates on the future structure of exports of these economies. It identifies four types of economies: agricultural net exporters and exporters of light manufactures among the poorer economies, and exporters of more capital-intensive manufactures and oil exporters among the richer economies. The final section of the chapter argues that the first and second of those four types of economies have an especially strong vested interest in joining together in seeking better access to agricultural and textile markets in wealthier countries.

2.1 GROWTH PERFORMANCE IN RECENT DECADES

The countries on the Indian Ocean rim range from tiny island states such as Seychelles with 100,000 people to India with its population of one billion; from land-abundant places such as Australia with only 2 people per square km. to Bangladesh whose population density is 500 times greater and Singapore where it is 6000 times greater; from several economies along the east coast of Africa producing less than US\$10 billion of GDP per year to Australia and India with GDPs of more than \$400 billion; from population growth rates of less than 1 per cent to more than 3 per cent per year; and from GDP growth rates of one to nine per cent per year since the mid-1960s (Table 2.1).

No less diverse are the key social indicators (Table 2.2). GDP per capita ranges from around \$200 per capita in some IOR African states to \$17,000 in the United Arab Emirates and around \$25,000 in Australia and Singapore. The range is only slightly less when expressed as gross national income (GNI) in purchasing power parity (PPP) terms. Life expectancy and literacy rates roughly mirror those differences. Much of that diversity is a consequence of very different long-run rates of economic growth. Growth in per capita income since 1965 has been spectacular in Southeast Asia and Oman, averaging around 5 per cent per year, and almost as good (3-4 per cent) in countries such as Mauritius and Sri Lanka, while in several others it has been close to or below zero.

When viewed relative to other regions, the diversity of economic growth rates within the region is made even clearer. As Table 2.3 shows, per capita GDP growth in the 1980s and 1990s was nearly twice as high in East Asia and in South Asia but both were well above the average for developing countries as a group. By contrast, the whole of Sub-Saharan Africa suffered negative per capita GDP growth. Moreover, the World Bank's projections to 2015 assuming current policies continue show only a slight convergence in those growth rates (final two columns of Table 2.3).

TABLE 2.1: KEY POPULATION AND OUTPUT INDICATORS, INDIAN OCEAN COUNTRIES

	Population (million)	Population growth (% pa)	Population density (per sq. km)	GDP (\$ billion)	GDP growth (% pa)
	1999	1965-99	1999	1999	1965-99
Australia	19	1.5	2	404	3.4
Indonesia	207	2.0	114	143	6.9
Malaysia	23	2.6	69	79	7.0
Singapore	4	1.9	6384	85	8.3
Thailand	60	2.0	118	124	7.3
Bangladesh	128	2.3	981	46	3.8
India	998	2.1	336	447	4.6
Pakistan	135	2.8	175	58	5.6
Sri Lanka	19	1.6	294	16	4.6
Egypt	63	2.2	63	89	5.6
Iran	63	2.8	39	111	1.7
Oman	2.3	3.9	11	15	9.5
United AE	2.8	9.5	34	47	3.3
Yemen	17	3.2	32	7	na
Madagascar	15	2.6	26	4	0.9
Mauritius	1.2	1.3	579	4	5.2
Seychelles	0.1	na	178	1	na
Kenya	29	3.3	52	11	4.7
Mozambique	17	2.2	22	4	4.2
South Africa	42	2.2	34	131	2.3
Tanzania	33	3.0	37	9	Na
Low income	2417	2.3	73	1033	4.1
Middle income	2665	1.7	40	5519	4.2
World	5978	1.7	46	30876	3.3

Source: World Bank (2001a).

TABLE 2.2: KEY SOCIAL INDICATORS, INDIAN OCEAN COUNTRIES

	GNI per capita (PPP \$)	GDP per capita (current \$)	GDP per capita growth (% pa)	Life expectancy (years)	Adult illiteracy rate (%)
	1999	1999	1965-99	1999	1999
Australia	23850	23554	1.9	79	1
Indonesia	2660	962	4.8	66	14
Malaysia	7640	4526	4.3	72	13
Singapore	22310	26460	6.3	78	8
Thailand	5950	2717	5.1	69	5
Bangladesh	1530	362	1.3	61	59
India	2230	450	2.4	63	44
Pakistan	1860	508	2.7	63	55
Sri Lanka	3230	814	3.0	73	9
Egypt	3460	1191	3.3	67	45
Iran	5520	1587	-1.0	71	24
Oman	na	6500	5.0	73	30
United AE	na	17000	-3.9	75	25
Yemen	730	286	na	56	55
Madagascar	790	242	-1.7	54	34
Mauritius	8950	4120	3.9	71	16
Seychelles	na	7177	na	72	Na
Kenya	1010	337	1.2	48	19
Mozambique	810	198	1.3	43	57
South Africa	8710	3904	0.0	48	15
Tanzania	500	188	na	45	25
Low income	1870	460	1.8	59	39
Middle income	5200	2070	2.4	70	15
World	6870	5440	1.6	66	Na

Source: World Bank (2001a).

AGRICULTURE AND ECONOMIC GROWTH IN IOR COUNTRIES

A not unimportant contributor to the diversity in economic growth performance has been the varying degrees of openness of these economies. Exports are less than one-sixth of GDP for the slowest-growing IOR economies in East Africa and South Asia, compared with two to four times that ratio for those with the fastest-growing living standards in the region (Table 2.4). A similar tendency is evident in the extent of reliance on foreign direct investment (Table 2.5).

Openness does not preclude trade taxes being a source of government revenue for poor countries. For example, Mauritius gets twice Kenya's share of national tax revenue from the border, even though it is far more open to trade than mainland African states; and Sri Lanka gets the same share as Pakistan, even though Pakistan's export-to-GDP ratio is less than half that of Sri Lanka's (compare Tables 2.4 and 2.5). The reason for this lack of correlation has to do with the use of either very high trade taxes and/or non-tariff barriers to trade. When trade taxes are so high as to virtually prohibit trade, they are unable to contribute to revenue raising. Quantitative trade restrictions do not raise government revenue either, except in the rare cases where import or export quota licences are auctioned by the government.

TABLE 2.3: REAL GDP PER CAPITA GROWTH, VARIOUS REGIONS, 1980 TO 2015 (PER CENT PER YEAR)

	1980-1990	1990-2000	2000-2005	2005-2015
WORLD	1.4	1.3	1.7	2.2
High-income countries	2.5	1.8	2.1	2.5
Economies in transition	1.5	-0.2	3.8	4.1
Developing countries	1.2	3.0	3.2	3.9
East Asia	6.0	5.9	5.1	5.4
South Asia	3.5	3.5	3.7	3.9
Sub-Saharan Africa	-1.2	-0.6	0.9	1.4

Source: World Bank (2001b, Table 1.13).

TABLE 2.4: KEY TRADE INDICATORS, INDIAN OCEAN COUNTRIES

	Exports of goods and services (\$ billion) 1999	Imports of goods and services (\$ billion) 1999	Exports of goods and services growth (% pa) 1965-99	Exports/GDP (%) 1999	Imports/GDP (%) 1999
Australia	73	84	5.8	19	21
Indonesia	54	35	5.6	35	27
Malaysia	96	76	9.9	122	97
Singapore	138	130	na	na	na
Thailand	71	56	11.2	57	45
Bangladesh	6	9	7.8	13	19
India	54	67	7.3	12	15
Pakistan	9	12	6.2	15	20
Sri Lanka	6	7	4.2	35	43
Egypt	13	22	5.4	16	24
Iran	17	16	-1.1	21	16
Oman	7	6	na	na	na
United AE	na	na	na	na	na
Yemen	3	3	na	39	45
Madagascar	1	1	-0.3	25	33
Mauritius	3	3	5.9	64	69
Seychelles	0.4	0.5	na	71	89
Kenya	3	3	2.9	24	31
Mozambique	1	2	5.8	12	38
South Africa	33	30	1.8	25	23
Tanzania	1	2	na	13	28
Low income	226	246	3.7	24	26
Middle income	1456	1376	5.7	29	26
World	7005	7000	5.9	27	25

Source: World Bank (2001a).

TABLE 2.5: FOREIGN INVESTMENT, TRADE TAXES AND AID, INDIAN OCEAN COUNTRIES

	Trade duties (% of total tax revenue)	Inward foreign direct investment stock (% of GDP)	Foreign direct investment (% of gross capital inv.)	Foreign aid (% of GNI)
	1998	1998	1999	1999
Australia	3	28	6.7	0.0
Indonesia	4	77	-9.2	1.7
Malaysia	13	67	8.8	0.2
Singapore	1	86	25.1	0.0
Thailand	9	18	23.8	0.8
Bangladesh	na	2	1.8	2.5
India	21	3	2.1	0.3
Pakistan	17	14	4.3	1.2
Sri Lanka	16	13	4.1	1.6
Egypt	13	20	5.2	1.8
Iran	18	1	0.3	0.1
Oman	4	17	Na	0.0
United AE	0	na	Na	0.0
Yemen	10	31	-11.8	7.4
Madagascar	53	6	2.9	9.8
Mauritius	30	9	4.2	1.0
Seychelles	na	na	26.3	2.4
Kenya	15	8	1.0	2.9
Mozambique	na	14	29.6	3.2
South Africa	3	13	6.7	0.4
Tanzania	na	na	12.1	11.3
Low income	na	na	3.0	2.2
Middle income	7	na	14.0	0.4
World	6	14	10.2	0.2

Source: World Bank (2001a) and UNCTAD (2000).

AGRICULTURE AND ECONOMIC GROWTH IN IOR COUNTRIES
2.2 AGRICULTURE'S CHANGING CONTRIBUTION TO THE ECONOMY

How has agriculture fared in the IOR region in the course of national and global economic growth? For the reasons explained in Appendix 1, it is normal for agriculture's contribution to production and employment to decline in relative importance as an economy grows. Thus slow declines in agriculture's shares of GDP and the labour force are typically symptomatic of slow economic and rural labour productivity growth, the exceptions being periods following a lifting of repression of agricultural incentives (as in Indonesia from the late 1960s and China from 1979).

A comparison of the final column of Tables 2.1 and 2.6 shows that agriculture has indeed grown slower than the rest of the economy in most IOR countries. But agriculture's share of employment is higher than and has fallen much slower than the sector's GDP share. That reflects the relatively low and slow-growing *average* productivity of labour in agriculture as compared with workers in non-farm sectors.

This latter phenomenon often leads governments to conclude that they should distort market incentives so as to encourage the growth of non-farm relative to farm activities. This is misguided, however, because it confuses *average* with *marginal* productivities. If labour markets are functioning well, labour productivity *at the margin* should be the same in all sectors (plus or minus the amortised cost of moving from one sector to another). Raising industrial relative to agricultural prices, for example by imposing tariffs on imports of manufactures or taxes on farm exports, causes domestic resources to be used sub-optimally and so aggregate GDP is reduced.

Agriculture's share of exports has been falling since the latter 1960s in most but not all IOR economies, as it has globally (from 19 to 11 per cent over the past three decades). The decline is most marked in the economies that have been most open (since they are the ones that have grown fastest), and least in India and especially the Africa states other than Mauritius and South Africa (columns 5 and 6 of Table 2.6).

Column 7 of Table 2.6 shows the share of textiles and clothing in each economy's exports. For the richest developing economies (Singapore, Malaysia and Thailand) that share is falling to quite low levels as they move to exporting more capital-intensive manufactures, while for the much poorer and more densely populated countries of South Asia that share has been rising over the past decade to extremely high levels.

What does that imply about the agricultural competitiveness of these states? One way to measure that is to compute Balassa's (1965) index of 'revealed' comparative advantage, which is agriculture's share of a country's exports relative to agriculture's share of global exports. Those ratios, which necessarily have a global average of unity, are reported for agricultural trade in columns 4 and 5 of Table 2.7. For all the IOR developing countries except those extremely well endowed with oil reserves relative to agricultural land, this ratio is well above unity; and it has fallen since the late 1960s for all but India and the less open African states.

TABLE 2.6: KEY AGRICULTURAL INDICATORS, INDIAN OCEAN COUNTRIES

	Agricultural share of labour force (%)		Agricultural share of GDP (%)		Agricultural share of merchandise exports (%)		Tex/cloth share of merch. exports (%)	Agric. value added (% per growth)
	1980	1990	1990	1999	1965-69	1995-99	1995-99 (1990)	1965-99
Australia	7	6	3	3	65	31	1(1)	2.2
Indonesia	56	56	19	19	52	17	12(11)	3.8
Malaysia	37	26	15	11	46	13	4(6)	2.9
Singapore	1	1	0.3	0.2	Na	4	2(4)	-1.5
Thailand	71	64	13	11	76	23	10(16)	3.9
Bangladesh	73	66	29	25	43	11	79(63)	2.1
India	70	69	31	28	36	20	28(26)	2.8
Pakistan	53	51	26	27	72	15	71(66)	4.1
Sri Lanka	na	48	26	21	96	23	54(33)	2.7
Egypt	42	39	19	17	70	15	21(27)	2.8
Iran	39	26	24	21	6	Na	4(3)	4.5
Oman	50	45	3	3	1	5	2(na)	na
United AE	5	8	2	2	Na	Na	0(0)	11.4
Yemen	73	61	25	18	13	5	Na	na
Madagascar	82	78	32	30	87	58	14	1.6
Mauritius	29	16	12	6	96	28	60	0.3
Seychelles	11	Na	5	4	76	99	Na	na
Kenya	23	19	29	23	58	64	2	3.4
Mozambique	84	83	37	33	78	80	Na	na
South Africa	17	14	5	4	30	14	2	2.0
Tanzania	86	84	46	45	77	83	2	na
Low income	66	64	29	26	na	na	na	2.7
Middle income	54	na	13	10	na	na	na	3.0
World	51	na	6	5	19	11	6(6)	2.2

Source: World Bank (2001a) and FAO (2000a).

TABLE 2.7: AGRICULTURAL TRADE COMPETITIVENESS INDICATORS, INDIAN OCEAN COUNTRIES

	People per sq. km.	Arable land per cap (100 sq.m.)	Grain self suff (%)	Agricultural comparative advantage index ^a		Agricultural net export index ^b	
	1999	1996-98	1995-99	1965-69	1995-99	1965-69	1995-99
Australia	2	280	1981	3.37	2.92	0.81	0.63
Indonesia	114	9	89	2.70	1.56	0.54	0.20
Malaysia	69	8	27	2.37	1.26	0.34	0.36
Singapore	6384	0	0	0.00	0.00	-1.00	-1.00
Thailand	118	28	142	3.89	2.15	0.68	0.45
Bangladesh	981	6	88	2.24	1.07	0.13	-0.49
India	336	17	99	1.86	1.88	-0.22	0.28
Pakistan	175	17	101	3.70	1.39	0.08	-0.33
Sri Lanka	294	5	59	4.94	2.18	0.37	0.04
Egypt	63	5	110	3.63	1.45	0.21	-0.78
Iran	39	28	130	0.30	0.70	-0.09	-0.49
Oman	11	1	na	0.03	0.44	-0.89	-0.50
United AE	34	2	0	0.00	0.19	-1.00	-0.51
Yemen	32	9	27	0.67	0.45	-0.53	-0.74
Madagascar	26	18	172	4.45	5.48	0.61	0.35
Mauritius	579	9	0	4.02	2.63	0.40	0.08
Seychelles	178	na	na	3.91	9.33	-0.05	-0.08
Kenya	52	14	85	2.99	6.06	0.51	0.46
Mozambique	22	19	94	4.02	7.56	0.50	-0.12
South Africa	34	12	146	1.55	1.33	0.43	0.27
Tanzania	37	12	125	3.96	7.79	0.73	0.34
World	46	24	100	1.00	1.00	0.00	0.00

^a Agriculture's share of the country's exports relative to agriculture's share of global merchandise exports, following Balassa (1965).

^b Agricultural exports minus imports as a ratio of agricultural exports plus imports.

Source: World Bank (2001a) and FAO (2000a).

Another index, shown in the final columns of Table 2.7, is able to account for imports of agricultural products too. It is defined as agricultural exports minus imports as a ratio of agricultural exports plus imports. It therefore ranges between -1 and +1, is positive (negative) for net exporters (importers) of agricultural products, and is zero for a country that is 100 per cent self-sufficient in such products. In the middle-income economies of Southeast Asia the index of net agricultural export surplus is still positive, but it has fallen somewhat over time. In most of the low-income, slower-growing economies of South Asia, the net export surplus in agricultural products has diminished to the point of going into deficit for these densely populated economies, again with the exception of India. The oil-rich Middle East is of course strongly dependent on imports of agricultural products, while in the east coast countries of Africa and the islands offshore the situation is more mixed: some still retain fairly high net export positions, while others have come close to or have slipped into a net import position in agricultural products.

For textiles and clothing, data in column 7 of Table 2.6 imply the Balassa comparative advantage index is more than 4 for India and more than 9 for the rest of South Asia and Mauritius, compared with 3 for Egypt, a bit over 2 for Indonesia and Madagascar, and 1.5 for Thailand. By contrast, for natural resource-rich Malaysia and South Africa, the oil-rich Middle East and capital-rich Singapore it is well under 1: their high wages ensure a strong comparative disadvantage in labour-intensive manufactures. At the other end of the development spectrum the Balassa index is even lower: their shortage of capital relative to agricultural land ensures no more than 2 per cent of the exports of the Sub-Saharan African countries shown in Table 2.6 come from textiles and clothing.

2.3 AGRICULTURAL (AND TEXTILE) TRADE PROSPECTS

What will be the key determinants of each country's net trade position in agricultural products in the years ahead? Appendix 1 suggests several, with perhaps the most important being relative factor endowments. The more densely populated a country (in particular the fewer the arable hectares per capita), and the more non-farm capital or mineral or energy reserves a country has relative to agricultural land, the weaker will be its agricultural comparative advantage, other things equal. The first two columns of Table 2.7 show the wide range of land endowment ratios across the Indian Ocean region. All but three countries (Australia, Thailand and Iran) have below the global average per capita endowment of arable land, and the majority have less than half the global average.

Appendix 1 explains that as non-farm capital accumulates or flows in from abroad, a developing economy will divert more of its labour to non-farm pursuits and thereby reduce its potential to produce an agricultural surplus. This diversion away from agriculture will tend to occur earlier, the more poorly endowed the economy is with agricultural land per worker. The earlier in its development that diversion of labour to industrial pursuits occurs, the more unskilled labour-intensive will be the manufactures produced for export. Over time, though, as capital accumulates the country will move toward exporting ever-more capital-intensive manufactures – as observed above for Southeast Asian countries.

Necessarily, the oil-rich, arable land-poor countries of the Middle East will continue to trade petroleum for agricultural and other products, but what of the other IOR developing countries? The South Asian and African economies other than Mauritius and South Africa are still very poor. Thus even though they are relatively densely populated, they are still close to or more than self sufficient in agricultural products in aggregate. The shares of agriculture in their production, employment and exports are still very high and will likely diminish only slowly while ever economic growth and capital accumulation in these countries remains sluggish.

Another key set of determinants of a country's net trade position in agricultural products has to do with domestic policies. Measures such as agricultural export taxes, import tariffs on manufactures, and neglect in the provision of essential infrastructure in rural areas all weaken the incentive for farmers to deliver to the market. Since some or all of those disincentives are present in the poorer IOR countries, reform of such policies could well strengthen agricultural performance in those economies.

The above suggests that, apart from Australia, in terms of the future structure of exports, the IOR economies can be usefully categorized into four types: agricultural net exporters and exporters of light manufactures among the poorer economies, and exporters of more capital-intensive manufactures and oil exporters among the richer economies.

2.4 NEGOTIATING INTERESTS OF THE POORER IOR ECONOMIES

Both the agricultural and textile exporting poorer countries of the region have an interest in the agricultural parts of the next round of multilateral trade negotiations. While exporters of tropical agricultural products face relatively low tariffs on most of their primary exports, there are important exceptions such as bananas. Also, they face much higher effective tariffs on many of the processed versions of tropical products, which hinder their capacity to export the processing value-added component.

Developing country exporters of agricultural products grown also in temperate areas (e.g., grains, livestock products, sugar and oilseeds) typically face high import tariffs and restrictive tariff rate quotas when trying to sell into OECD countries' markets. They have a clear interest in seeing those barriers lowered. It is true that among this group is a subset of developing countries whose exports of agricultural products enjoy preferential access into OECD countries' markets. In the short term at least, they may lose sales revenue on those items if the OECD countries' MFN tariff rates are lowered. Even so, they may gain enough sales of other agricultural products whose tariffs have been lowered to more than offset the cut in their margin of preference, and/or they may be able to negotiate compensation (see chapter 4).

Some net food-importing developing countries fear agricultural protection cuts by OECD countries will lead to higher international food prices for their imports (and perhaps fewer concessional imports via food aid or subsidized sales). 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 (as so many net food importers are), 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 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.

Within the low-income IOR countries, the vast majority of the poor are in farm households that would benefit directly from a food price rise. Moreover, most of the rest of the poor would benefit indirectly from agricultural trade liberalization via a rise in the wage for unskilled labour, which may be 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 main vulnerable group is under-employed urban poor – a relatively small group that could be compensated with food aid programs at low cost.

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 clothing lowered. That interest of theirs in textile trade expansion should be shared by the region's 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.

2.5 WHERE ARE THE BIGGEST POTENTIAL GAINS FROM THE NEXT WTO ROUND?

The IOR developing countries' interests during the next round of multilateral trade negotiations in market access opportunities abroad, either in agricultural products and/or light manufactures such as textiles and clothing, puts them on the moral high ground. This is because they remain the most protected goods in world trade (WTO 2001b). That fact is reflected in a recent set of empirical estimates using a model of the global economy known as GTAP (described in Appendix 2). According to those estimates, of all the economic gains to be had in 2005 from removing the 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 (see Table 2.8) – 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 pale 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 agricultural products (Anderson 2001).³

³ The above ignores barriers to trade and investment in services, not because they are trivial (far from it) but simply because it is very difficult to measure their effects on a comparable basis.

TABLE 2.8: SECTORAL AND REGIONAL ECONOMIC WELFARE GAINS 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 & Clothing	Other Manufactures	Total
High Income						
	<i>High Income</i>	110.5	-0.0	-5.7	-8.1	96.6
	<i>Low Income</i>	11.6	0.1	9.0	22.3	43.1
	Total	122.1	0.0	3.3	14.2	139.7
Low Income						
	<i>High Income</i>	11.2	0.2	10.5	27.7	49.6
	<i>Low Income</i>	31.4	2.5	3.6	27.6	65.1
	Total	42.6	2.7	14.1	55.3	114.7
All Countries						
	<i>High Income</i>	121.7	0.1	4.8	19.6	146.2
	<i>Low Income</i>	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 ^b :	Benefitting region ^b :	Agriculture and Food	Other Primary	Textiles & Clothing	Other Manufactures	Total
High Income						
	<i>High Income</i>	43.4	0.0	-2.3	-3.2	38.0
	<i>Low Income</i>	4.6	0.1	3.5	8.8	16.9
	Total	48.0	0.0	1.3	5.6	54.9
Low Income						
	<i>High Income</i>	4.4	0.1	4.1	10.9	19.5
	<i>Low Income</i>	12.3	1.0	1.4	10.9	25.6
	Total	16.7	1.1	5.5	21.7	45.1
All Countries						
	<i>High Income</i>	47.9	0.1	1.9	7.7	57.5
	<i>Low Income</i>	16.9	1.0	4.9	19.6	42.5
	Total	64.8	1.1	6.8	27.3	100.0

^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. The decomposition of aggregate results into its component parts uses an approach developed by Huff and Hertel (2001).

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

Source: Anderson (2001a).

However, two assumptions were crucial in generating the results reported in Table 2.8. One is that China and Chinese Taipei were assumed to join the WTO and enjoy the same accelerated access to OECD markets under the UR Agreement on Textiles and Clothing (ATC) as other developing countries that already are WTO members. In fact they joined by end-2001 but their dismantling of textile trade barriers will stretch a few years beyond 1 January 2005. The other crucial assumption is that OECD countries fully implement the ATC. The latter is far from certain to happen though, particularly as China's WTO accession means it too will be phasing out its 'voluntary' export restraints (VERs) on textiles and clothing. Replacing those assumptions with more realistic ones reduces very substantially the estimated gains from Uruguay Round implementation (Anderson et al. 1997b), and therefore raises the potential gains from textile and clothing reform in the next and subsequent WTO rounds above those shown in Table 2.8.

The distribution of the gains across regions that would result from full trade liberalization also is provided in Table 2.8. 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 agricultural and food products accrues to those countries. Even so, that agricultural trade reform contributes more than one-quarter of the total welfare gains to developing countries from developed countries liberalizing their merchandise trade (12/43).⁴ As for developing countries liberalizing their own agricultural 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 2.8, farm and food policies globally contribute 40 per cent (17/43) of the cost to developing economies of global goods trade distortions. Textile and clothing policies also harm them greatly, but nowhere near as much as farm policies.⁵

For reasons explained in the previous section, even many food-importing developing economies would benefit from farm policy reforms of high-income countries. For the subset that would suffer a deterioration in their terms of trade, however, the extent of the rise in their food import prices would be very small. The above GTAP study found that full liberalization of OECD farm policies would boost 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. The reason for the small price rise is that global farm supply responses to price changes are rather 'elastic'. That is, agricultural trade liberalization in one set of countries induces relatively large increases in agricultural output and net exports in other countries, thereby keeping prices from rising greatly.

⁴ Note that developed countries would lose slightly from removing their barriers to imports of manufactures. This is because the welfare gain from removing those distortions to production and consumption is slightly more than outweighed by their loss of welfare due to a deterioration in their terms of trade (that is, in the price of imports relative to the price of exports) that results from buying more imports and supplying more exports.

⁵ It should be recognised 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 in chapter 4.

TABLE 2.9: SECTORAL AND REGIONAL CONTRIBUTIONS TO ECONOMIC WELFARE GAINS FOR IOR (AND OTHER SUB-SAHARAN) DEVELOPING COUNTRIES FROM THE COMPLETE REMOVAL OF TRADE BARRIERS GLOBALLY, POST-URUGUAY ROUND, 2005

(in 1995 US\$ billions)

	High-income libn.		Low-income libn.		Global libn.
	Agric.	Other	Agric.	Other	All
	+ food	goods	+ food	goods	goods
Indonesia	0.2	0.5	0.2	1.1	2.0
Other Southeast Asia	-0.9	1.3	5.7	4.6	10.7
India	0.7	3.0	1.9	3.2	8.8
Other South Asia	0.1	1.3	3.0	2.2	6.6
South Africa	0.8	0.1	0.4	0.1	1.4
Other Sub-Saharan Africa	1.6	0.1	1.2	0.3	3.2
TOTAL of above	2.5	6.3	12.4	11.5	32.7

^a The decomposition of aggregate results into its component parts uses an approach developed by Huff and Hertel (2001).

Source: Anderson, Dimaranan et al. (2001).

Moreover, even if a country's national economic welfare were to decline following the change in its terms of trade resulting from the next multilateral trade negotiations, that does not mean the economy would be better off not participating in the round. On the contrary, that economy's welfare would fall even more if it did not participate, because it would forego the economic efficiency gains from reforming its own policies.⁶

The results for developing countries in Table 2.8 are disaggregated in Table 2.9 to show the effects on subgroups of IOR developing countries. In dollar terms the gains from global liberalization would be equally as great for South Asia as for Southeast Asia, while only one-third as large for the much smaller economic region of Sub-Saharan Africa. Being more agrarian, Sub-Saharan Africa would gain more from agricultural trade liberalization by either rich or poor countries, whereas India and Indonesia would gain more from non-agricultural than agricultural trade reform elsewhere.

⁶ For empirical support for this proposition with respect to Indonesia, see Anderson and Strutt (1999). New results focusing on South Asia and Sub-Saharan Africa are presented in chapter 6.

Why would Other Southeast Asia lose from farm reform by high-income countries? Further decomposition of the results shows that it is not because of an adverse terms-of-trade change but rather a reduction in the efficiency of that sub-region's own resource use. In Malaysia, for example, such reform would encourage more resources to go into its protected rice sector at the expense of being used in other sectors in which Malaysia has a stronger comparative advantage. For the IOR developing countries as a group, the bottom line of Table 2.9 shows not only that agricultural reform would contribute more than one-third of all their potential gains from a freeing of merchandise trade globally, but also that most of that contribution from agricultural trade liberalization would come from developing country reforms. This suggests IOR developing countries have a much stronger interest in agricultural trade liberalization – including by developing countries themselves – than their involvement in this issue at the WTO to date would suggest.

This section should not conclude without asking: what about policies affecting international trade and investment in services? Their very nature 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 commitments that will lead to almost no lowering of those trade impediments in developing countries (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.⁷ Those gains would come not just directly to consumers, but also to producers who purchase services as intermediate inputs into their goods production. In particular, farmers 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).

If these were not enough reasons for a government to become an active participant in the next WTO round, including embracing trade reform at home, the nature and speed of globalization should be. As the next chapter makes clear, the policy choices are becoming starker than in the past: the rapid falls in the costs of doing business across national boundaries mean that the rewards from opening one's own economy to foreign trade and investment flows have risen, and so too have the costs of not adopting and maintaining an open, stable and transparent set of economic policies.

⁷ A new study by Francois (2001) which includes estimates of the tariff equivalent of services distortions finds that if applied tariff rates for both goods and services in all regions were to be cut in half, 51 per cent of the global gains would be due to services reform. That study, which is discussed in more detail in chapter 6, does not decompose the results to show them separately for developed and developing country reforms, unfortunately.

3. GLOBALIZATION AND THE DEVELOPMENT STRATEGIES OF IOR COUNTRIES



3.1 DEFINITION AND EXTENT OF GLOBALIZATION

Globalization could be defined simply as the decline in costs of doing business internationally. One of its key effects is to enhance the international integration of markets for goods, services, technology, ideas, financial and other capital, and labour. Indicators of its progress include convergence in prices for those products and factors across space (within as well as between countries). That, and related effects of globalization, are being felt by all countries of the world.

Both technological and governmental barriers contribute to the costs of interacting internationally. Falls in transport costs, the huge decline in communication and information costs, and cuts in tariff and non-tariff governmental barriers to trade in goods and services combined in the late 20th century to accelerate globalization to an unprecedented speed that shows no sign of abating.

The extent of the acceleration in globalization cannot be captured in a single statistic, but several provide partial indications of what is involved. A standard indicator is the comparison between trade and GDP growth. As Table 3.1 shows, while merchandise trade for centuries has grown faster than output for all periods except between the two world wars, the gap has been larger in the 1990s than in any earlier period since the mid-nineteenth century. More than one-fifth of global output is now exported, double the proportion in the 1950s.

Annual outflows of foreign direct investment also grew more than six-fold between 1983 and 1990, and continued to grow more than twice as fast as goods trade in the 1990s. Intra-firm trade among multinational corporations (MNCs) is estimated to account for one-third of world trade, and another one-third is MNC trade with non-affiliates.

During the 1990s international portfolio investment grew even faster than foreign direct investment. Between 1991 and 1999, the annual value of cross-border mergers and acquisitions grew from \$100 billion to more than \$700 billion, or from 0.5 to 2.5 per cent of global GDP (UNCTAD 2000, p. 10). Daily foreign exchange transactions now exceed global currency reserves, with international capital flows more than 50 times the value of international trade flows.

The 1990s have also seen an explosion in the world's capacity for electronic commerce: a doubling in the number of telephone lines, a 25-fold increase in the number of cellular phones, a near quadrupling in the number of personal computers, and an expectation that two-thirds of those PCs will have internet access by 2001 (WTO 1998b, p. 8).

TABLE 3.1: GROWTH IN WORLD GDP AND MERCHANDISE EXPORTS IN REAL TERMS, 1720 TO 1996

(per cent per year)

	1720-1820	1820-1870	1870-1913	1913-1950	1950-1973	1973-1990	1990-1996
Real GDP	0.8	1.9	2.5	1.8	5.4	2.7	2.9
Export volume	1.4	4.5	3.9	0.5	9.8	4.0	5.9
<i>Export growth/ GDP growth</i>	1.7	2.4	1.6	0.3	1.8	1.5	2.1

Sources: WTO (1998a, p. 34).

3.2 TECHNOLOGICAL CONTRIBUTIONS TO GLOBALIZATION

There have been three technological revolutions in transport and communication costs in modern times that have contributed substantially to globalization. The cost of transporting goods was lowered enormously in the 19th century by the advent of the steam engine, which created the railway and steamship. Steel hulls for ships and refrigeration further lowered the real cost of ocean transport late in the 19th century, particularly for perishable goods. The telegraph lowered communication costs enormously too (O'Rourke and Williamson 1999).

The second technological revolution also lowered hugely the cost of people travelling. It was dominated, in the middle half of the 20th century, by the falling cost of transport by car and aeroplane thanks to mass production of such goods and associated services. Ocean freight rates (helped by containerization) and telephone charges also fell massively over this period.⁸

The third and current revolution in transport and communications technology, beginning towards the end of the 20th century, is digital. Aided by deregulation of telecom markets in many countries, it is lowering greatly long-distance communication costs, and especially the cost of rapidly accessing and processing knowledge, information and ideas from anywhere in the world.⁹ Science has been among the beneficiaries of the digital revolution, spawning yet another revolution, namely in biotechnology.

⁸ Between 1920 and 1980, the real charge per tonne for ocean freight fell by almost three-quarters and between 1960 and 1980 the real cost of a telephone call from New York to London fell by 90 per cent. Meanwhile, between 1930 and 1980 the real cost of air travel fell 85 per cent (Hufbauer 1991). Transport costs can be crudely captured by the extent to which the c.i.f. import price exceeds the f.o.b. export price for a product. For United States merchandise trade, that mark-up has fallen from 9.5 per cent in the 1950s to 6 per cent in the 1990s (Frankel 1997).

⁹ Two book titles summarize this 150-year history: Blainey's *Tyranny of Distance* which refers to Australia's early isolation from the Old World prior to steamships, and Cairncross' *Death of Distance* which refers to the latest communications revolution (Blainey 1966; Cairncross 1997). For comparisons of the nineteenth and late twentieth century episodes of globalization, see Baldwin and Martin (1999) and Bordo, Eichengreen and Irwin (1999).

A side-effect of the Internet's expansion is the growth in the use of the English language. It has been claimed that there are now more people using English as a second language than there are people for whom it is a first language (Cairncross 1997). This too is lowering costs of communicating between countries.

3.3 GOVERNMENTAL CONTRIBUTIONS TO GLOBALIZATION

The above developments have been reinforced by government decisions to liberalize goods and services trade and currency and investment regimes, and to better assign and enforce property rights.

Following the protectionist inter-war period, market liberalization began with the lowering of import tariffs on trade in manufactures between industrial economies. Within Western Europe that trade was especially liberal following the Treaty of Rome and the formation of the European Free Trade Area. In the 1980s, trade reform was followed by extensive liberalizations of foreign exchange markets and of restrictions on financial capital flows, leading (with the help of new digital technologies) to the development of new varieties of internationally tradable financial security instruments. At the same time many non-OECD countries – including China, the Soviet bloc and Indo-China -- began moving away from inward-looking to outward-oriented trade and investment policies. The 1980s also saw the deregulation of domestic markets in a growing number of countries, which reinforced the effects of deregulating transactions at national borders. The pace of reform continued into the 1990s (Lawrence 2001).

Economic reforms have included the better assignment of property rights. Water is one example. In Southeast Asia as in many other countries, water has been grossly underpriced; and in many cases ownership of the resource itself, or of access to it, had not been assigned. That is changing as government charges rise to more fully reflect the worth of the resource flow, and/or as the right of access to surface and ground water is being allocated to landholders in the form of tradable certificates. Another example is intellectual property. New information technologies, including DNA fingerprinting, make it much easier and hence much less costly to enforce intellectual property rights (IPRs). That has prompted more governments to assign IPRs, for example to plant-related inventions based on genes. A third example is land rights. Their evolution is a normal part of economic development as traditional societies begin to modernize. But in the 1980s and 1990s many former centrally planned economies have passed at least user rights back to individuals. A major effect of that in China has been a huge boost to farm output, raising its share of global food production from around 13 to 18 per cent. Once that extends more effectively to mines in China, and if/when rights to the use of agricultural and mineral resources are more efficiently allocated in other former CPEs (most notably Russia), comparative advantages of natural resource-rich market economies could be altered significantly.

These reforms benefit most the countries making them, but they also benefit virtually all of their trading partners.¹⁰ Hence, the more countries open up and reform, the greater is the gain to other countries from doing likewise. In particular, they expand the opportunities for developing and transition economies to access goods and services markets, investment funds, and technologies, thereby raising the pay-off to those economies from joining the band-wagon of liberalization. Those that have already done so have grown much faster than the rest, and have seen their incomes converge toward OECD income levels.¹¹ The reasons for faster growth of more open economies have to do with the dynamics of trade liberalization, something which is not just an abstract idea from new trade and growth theory (Grossman and Helpman 1991; Taylor 1999) but one that is well supported empirically (USITC 1997).

Greater openness can carry some risks, however, especially if appropriate domestic policies are not in place. Two examples are prudential regulation of the financial sector and environmental concerns. There is also a risk that the market-opening reforms of the post-war period, and especially the past fifteen years, could be reversed by governments as domestic political circumstances change. As explained in the next section, during the past 50 years that risk has been contained by the GATT and, since 1995, its successor the WTO. But, as the events in Seattle showed in late 1999, it is certainly not eliminated.

Together with the above-mentioned technological revolutions, these policy reforms have brought about a more-integrated global trading system, a much more-integrated global capital market, and more integrated firms as international transactions that formerly took place between independent entities are being internalized within single firms or corporate alliances. The increasing mobility of the productive assets of firms enables them to minimize their corporate income tax exposure by strategically locating their headquarters and using transfer pricing in their intra-firm international trade. It also encourages governments to compete for the presence of firms, via regulatory reforms, lower tax rates, and other investment incentives. Such incentives can include, particularly in developing countries, restraints on the adoption or enforcement of higher environmental and labour standards. However, these restraints are to some extent countered by the potential for multinational companies to bring their own higher standards, better technologies and sensitive brandnames to developing countries. Government spending on incentives to attract firms could leave governments with less tax revenue to supply social policies at a time when the demand for such policies is rising with income growth and with disruptions in the market for low-skilled labour. But, if the regulatory reform is growth-enhancing and includes the privatization of state-owned enterprises, government revenue could expand.

¹⁰ Even those that might lose in the short term from an adverse terms of trade change are in the long term likely to benefit from the faster economic growth and greater openness of the reforming countries.

¹¹ See, for example, Dollar (1992), Edwards (1998), Sachs and Warner (1995) and, for a bibliography, WTO (1998a, pp. 62-63).

3.4 IMPLICATIONS FOR THE LOCATION AND COMPOSITION OF PRODUCTION

These technological and governmental revolutions have contributed increasingly to the drift towards urbanization. The first helped launch the industrial revolution in Western Europe, but partly by lowering the cost of exploiting natural resources abroad, which allowed primary sectors in less-densely populated and tropical countries to expand also. The second revolution accelerated industrialization in the West and its spread to the Far East, including via what Vernon (1966) described as the product cycle. The third and current revolution is increasing the scope to subdivide the processes of production and distribution into parts that can be relocated anywhere in the world, according to ever-increasing changes in comparative advantages over time (Jones and Kierzkowski 1997). That can be via various means including sub-contracting, licensing, joint ventures, and direct foreign investment by multinational corporations (Markusen et al. 1996).

Methods of industrial production are altering dramatically too. Specialized, single-purpose equipment for mass production is being supplemented or replaced by flexible machine tools and programmable multi-task production equipment. Because this type of machinery can be quickly and cheaply switched from one task to another, their use permits the firm to produce a variety of products efficiently in small batches (Milgrom and Roberts 1990).

The resulting productivity growth in industrial and service sectors is altering the key source of wealth of nations, which is moving ever-faster away from natural to human capital (that is, from raw materials and physical capital per worker to human skills and knowledge). In particular, wealth creation in the 21st century will depend especially on the ability to access and make productive use of the expanding stocks of knowledge and information, and to build on them through creative research and development to design highly flexible production methods (World Bank 1998). How well and how quickly people of different regions are able to do that will increasingly determine relative economic growth rates. But for all countries, the extent and speed with which economic events abroad are transmitted to domestic markets will increase inexorably – and governments will have less and less capacity to isolate their economies from such trends, as financial derivatives and electronic commerce have made clear in the cases of international financial flows and a widening range of traded goods and services (WTO 1998b).

3.5 THE GATT/WTO'S CONTRIBUTION TO GLOBALIZATION

History shows that the risk of market-opening being reversed is much more likely in the absence than in the presence of international constraints on national trade policy actions. For example, the Cobden-Chevalier Treaty of 1860, between England and France, contained a most-favoured-nation (MFN) clause. This required that the agreed cut in the tariff on each item in their bilateral trade was to be applied also to their imports from other countries. It also meant that every European country that subsequently signed a trade treaty with either England or France (and most did by 1867) signed onto MFN. The effect was a

network of treaties that lowered hugely the level of tariff protection in Europe (Kindleberger 1975), allowing world output and trade to boom for several decades until the First World War intervened (Table 3.1). Following that war, efforts to restore liberal trade centred on international conferences, but they did not lead to renewed trade treaties with binding commitments to openness based on MFN. Then when recession hit in the late 1920s, governments responded with beggar-my-neighbour protectionist trade policies that drove the world economy into depression. The volume of world trade shrunk by one-quarter between 1929 and 1932, and its value fell by 40 per cent. And the first attempts to reverse that protection were discriminatory, as with the Ottawa Conference of 1932 that led to preferential tariffs on trade among members of the British Commonwealth.

Out of the inter-war experience came the conviction that liberal world trade required a set of rules and binding commitments based on non-discriminatory principles. While there was not enough agreement to create an international trade organization, at least a General Agreement on Tariffs and Trade was signed by 23 large trading countries in 1947. The GATT provided not only a set of multilateral rules and disciplines but also a forum to negotiate tariff reductions and rules changes, plus a mechanism to help settle trade disputes. Eight so-called rounds of negotiations took place in the subsequent 46 years, the last one (the Uruguay Round) culminating in the 'interim' GATT Secretariat being converted into the World Trade Organization in January 1995.

The GATT, and now even more so the WTO, contributes to globalization in several crucial ways. The WTO has four key objectives: to set and enforce rules for international trade, to provide a forum to negotiate and monitor trade liberalization, to improve policy transparency, and to resolve trade disputes. Apart from the transparency role, these were also the key objectives of its predecessor before the WTO came into being. However, the WTO is much more comprehensive than the GATT. For example, GATT's product coverage in practice was confined mainly to manufactures (effectively not including textiles and clothing), whereas the WTO encompasses all goods (including sensitive agricultural products), services, capital to some extent, and ideas (intellectual property). As well, following the conclusion of the Uruguay Round negotiations, the interim GATT Secretariat was converted to a permanent WTO Secretariat with greatly strengthened trade policy review and dispute settlement mechanisms. It has also taken on two new roles: cooperating with the IMF and the World Bank with a view to achieving greater coherence in global economic policy making, and facilitating the integration of developing countries into the global trading system.

GATT/WTO rules to govern international trade serve at least three purposes. First, they protect the welfare of small and weak nations against discriminatory trade policy actions of large and powerful nations. GATT Articles I (most-favoured-nation) and III (national treatment) promise that all WTO members will be given the same conditions of access to a particular country's market as the most favoured member, and all foreign suppliers will be treated the same as domestic suppliers. These fairness rules are fundamental to instilling confidence in the world trading system. In particular, they lower the risks that are associated with a nation's producers and consumers becoming more interdependent with foreigners - risks that otherwise could be used by a country as an excuse for not fully opening its borders.

Second, large economies have the potential to exploit their monopoly power by taxing their trade, but we know from trade theory that the rest of the world and the world as a whole are made worse off by such trade taxes. Thus while each large economy might be tempted to impose trade taxes, the effect of lots of them doing so simultaneously may well be to leave most if not all of them worse off -- not to mention the welfare reductions that would result in many smaller countries. Hence the value of agreeing not to raise trade barriers and instead to 'bind' them in a tariff schedule at specified ceiling levels. This rule is embodied in GATT Article II, whereby WTO members are expected to limit trade only with tariffs and are obligated to continue to provide market access never less favourable than that agreed to in their tariff schedules. Again, the greater certainty which this tariff-binding rule brings to the international trading system adds to the preparedness of countries to become more interdependent and of business people to invest more.

The third and perhaps most important contribution of multilateral rules disciplining trade policy is that they can help governments ward off domestic interest groups seeking special favours. This comes about partly via Article II, which outlaws the raising of bound tariffs, as well as via numerous other articles aimed at ensuring that non-tariff measures are not used as substitutes for tariffs. This benefit of the system is sometimes referred to as the 'Ulysses effect': it helps prevent governments from being tempted to 'sin', in this case to favour special interest groups at the expense of the rest of their economy.¹²

While no-one would argue that the GATT rules have been applied without exception, the fact that they are there ensures the worst excesses are avoided. They therefore bring greater certainty and predictability to international markets, enhancing economic welfare in and reducing political tensions between nations. More than that, by promoting interdependence the GATT/WTO indirectly has raised the price and hence reduced the likelihood of going to war.

But why do countries need the WTO to negotiate freer trade? One of the clearest lessons from trade theory is that an economy unable to influence its international terms of trade cannot maximize its national income and economic growth without allowing free trade in all goods and services. Consumers lose directly from the higher domestic prices of importables, while exporters lose indirectly because import barriers cause the nation's currency to appreciate (there is less demand for foreign currency from importers) and raise the price of labour and other mobile resources. More-open economies also grow faster. Why, then, do countries restrict their trade, and why do they need to get together to agree to liberalize those protectionist trade regimes multilaterally, when it is in their national economic interests to do so unilaterally?

¹² Petersmann (1991, p. 83) goes so far as to say that "the primary regulatory function of the GATT [is] the welfare-increasing resolution of domestic conflicts of interest within GATT member countries among individual producers, importers, exporters and consumers ." Similarly, Roesler (1985, p. 298) claims that "the principal function of the GATT as a system of rules is to resolve conflicts of interest within, not among, countries. The function of the GATT as a negotiating forum is to enable countries to defend the national interest not against the national interests of other countries but against sectional interests within their own and other countries."

Numerous reasons have been suggested as to why a country imposes trade barriers in the first place, but almost all of them are found wanting (Corden 1997). The most compelling explanation is a political economy one. It has to do with the national income re-distributive feature of trade policies: the gains are concentrated in the hands of a few who are prepared to support politicians who favour protection, while the losses are sufficiently small per consumer and export firm and are distributed sufficiently widely as to make it not worthwhile for those losers to get together to provide a counter-lobby, particularly given their greater free-rider problem in acting collectively (Hillman 1989, Grossman and Helpman 1994, Anderson 1995). Thus the observed pattern of protection in a country at a point in time may well be an equilibrium outcome in a national political market for policy intervention.

That political equilibrium in two or more countries might, however, be able to be altered for the better through an exchange of product market access. If country A allows more imports, it may well harm its import-competing producers if there are no compensation mechanisms; but if this liberalization is done in return for country A's trading partners lowering their barriers to A's exports, the producers of those exports will enjoy this additional benefit. The latter extra benefit may be sufficiently greater than the loss to A's import-competing producers that A's liberalizing politicians too become net gainers in terms of electoral support. Likewise, politicians in the countries trading with A may well be able to gain from this trade in market access, for equal and opposite reasons. That is, a new opportunity for trade negotiations can stimulate trade liberalization by altering the incentives to lobby politicians and thereby the political equilibrium in trading nations.¹³

Such gains from trade negotiations involving exchange of market access will tend to be greater nationally and globally, the larger the number of countries involved and the broader the product and issues coverage of the negotiations. Hence the wisdom in negotiating multilaterally with more than 100 countries over a wide range of sectors and issues, as in the Uruguay Round, despite the process being cumbersome. Now that there is so much more product coverage under the WTO than under the GATT, and the number and extent of participation by member countries keeps growing, the scope for exchange of market access has increased dramatically. That is especially true for exchanges between more- and less-developed economies, now that agriculture and textiles and clothing are back in the GATT mainstream and services and trade-related intellectual property have been added, making a wider range of intersectoral tradeoffs possible.

¹³ Elaborations of this economists' perspective can be found in Grossman and Helpman (1995) and Hoekman and Kostecki (2001). Political scientists are beginning to take a similar view. See, for example, Goldstein (1998).

3.6 IMPLICATIONS FOR IOR COUNTRIES' POLICY CHOICES

Greater openness of and interdependence between national economies provides wonderful opportunities for poorer economies, even though it is not without its challenges. Globalization is raising the rewards to economies choosing good economic governance, *but it is also raising the cost to economies with poor economic governance*. Just as financial capital can now flow into a well-managed economy more easily and quickly than ever before, so it can equally quickly be withdrawn if confidence in that economy's governance is shaken – as the recent East Asian financial crisis demonstrated all too clearly. In this section there is space to discuss just two aspects of good economic governance in the wake of globalization: commitment to a liberal international trade and payments regime, and growth-enhancing domestic policies that are not sectorally biased. Together they will enable producers to take maximum advantage of prospective export opportunities following the next WTO round of trade negotiations.

Commitment to a liberal trade and payments regime

The above suggests the first priority for a poor country seeking to achieve sustainable economic development in the 21st century is to practice good economic governance generally, and in particular to commit to a *permanently* open international trade and payments regime, and to provide secure property rights (intellectual as well as physical). The stability of the commitment to openness is much more crucial now than even just 15 years ago, because otherwise capital inflows and investments will be only short-term in nature -- and will be susceptible to withdrawal should confidence waver. It is for this reason, and because of the comprehensiveness of WTO agreements, that liberal trade policy commitments under the WTO are so important. They are valued by would-be investors because WTO commitments involve (a) legal bindings and (b) most-favoured-nation treatment by trading partners. The legal bindings mean a WTO member cannot return to a more protectionist regime by raising tariffs above the bound rates listed in the member's Schedules of commitments. Nor does that member risk facing higher than MFN bound tariffs in exporting to its trading partners if they are WTO members.

Growth-enhancing domestic policies that are not sectorally biased

The extent to which liberalizing one's own trade and payments regime and securing greater market access opportunities for one's exports boosts a developing country's economic growth depends importantly also on the domestic policy environment. Sound, predictable, stable macroeconomic policies, and taxation policies that are not sectorally biased, are essential. Uruguay Round reforms abroad will make agricultural and textile/clothing exports more profitable for developing countries. Trade liberalization at home will tend to reinforce that, because many developing and transition economies have traditionally protected heavy manufacturing industry at the expense of light manufacturing and primary production – a pro-urban industrial bias.

Those past trade and other pro-urban policy biases discouraged investment in infrastructure and human capital in rural areas. Unleashing the productive potential of the rural sector requires major upgrading of essential rural infrastructure, to lower the transactions costs of doing business there, and it requires investment in the people involved. The crucial infrastructure includes rural roads, electricity, telecommunications and radio transmission, so that costs of transport, communications and information (about market conditions, new technologies and the like) become more affordable. Investments in these items probably will be more expensive per capita than in urban areas, but that needs to be weighed against the net long-term benefits from expanding output faster from rural areas. In numerous countries irrigation investments also need to be facilitated, even if they are mostly funded at the local level with the help of loans (which require secure property rights over land use so land can be used as collateral with lenders).

The crucial investments in people include basic schooling (for girls as much as for boys), basic health services, and agricultural research and extension. All the empirical evidence points to the social rates of return from such public investments being very high in developing countries even when price and trade policies discriminate heavily against the rural sector; hence they are likely to be even higher as and when those policies are reformed. If/where those social rates of return are significantly above private rates, a case might be made for government subsidies (Schultz 1975). Drawing on a great deal of empirical research, Schultz argues that the case is especially strong with human capital investments in rural areas. Such investments not only raise farm incomes and so reduce the need for farmers to leave agriculture; they also increase the prospects for those who migrate to non-farm jobs. In both respects, the social tensions that are inevitably associated with rapid economic growth and structural change are lessened.

Efforts to reduce under-investment in rural infrastructure too would benefit not only agricultural production. With better transport and communications infrastructure and better-educated workers, rural areas also would be more attractive to investors in low-skill intensive manufacturing and related service activities. Hence we would see clothing factories and the like becoming more common in rural areas. That would boost off-farm earnings of farm households, allowing a more efficient and fuller use of the rural work force particularly in non-peak seasons. And in addition to its contribution to output, this rural development strategy would slow the growth in urban pollution and congestion, and reduce the incidence of poverty and hunger (since most of the poor are in or have recently migrated from rural areas).

In conclusion, it is worth re-iterating that market responses to trade liberalization at home and abroad may not be sufficient to fully reap the rewards from those reforms. As explained by Krugman (1998), the reason is that history matters: earlier protection to heavy industry in developing countries boosted their urban centres, as did the restrictions on those countries' access to rich-country markets for agricultural products. With the growing importance of scale economies in many non-primary sectors, and inadequate environmental taxes on negative externalities such as urban pollution and congestion, resources will continue to want to locate in large urban centres. In societies where lobbying politicians has a high payoff,

that provides a further reason for capitalists to retain a presence in the capital city. First-best solutions could include imposing environmental taxes and outlawing rent-seeking. But if that is too difficult, second-best measures may well be justified. They could include subsidizing investments in infrastructure and human capital in rural areas for a while until the centrifugal market forces are sufficient to offset the centripetal forces of geographic concentration, to use Krugman's terminology.

4. POLICIES ABROAD AFFECTING IOR COUNTRIES' EXPORT PERFORMANCE



4.1 AGRICULTURAL POLICIES OF OTHER COUNTRIES POST-URUGUAY ROUND

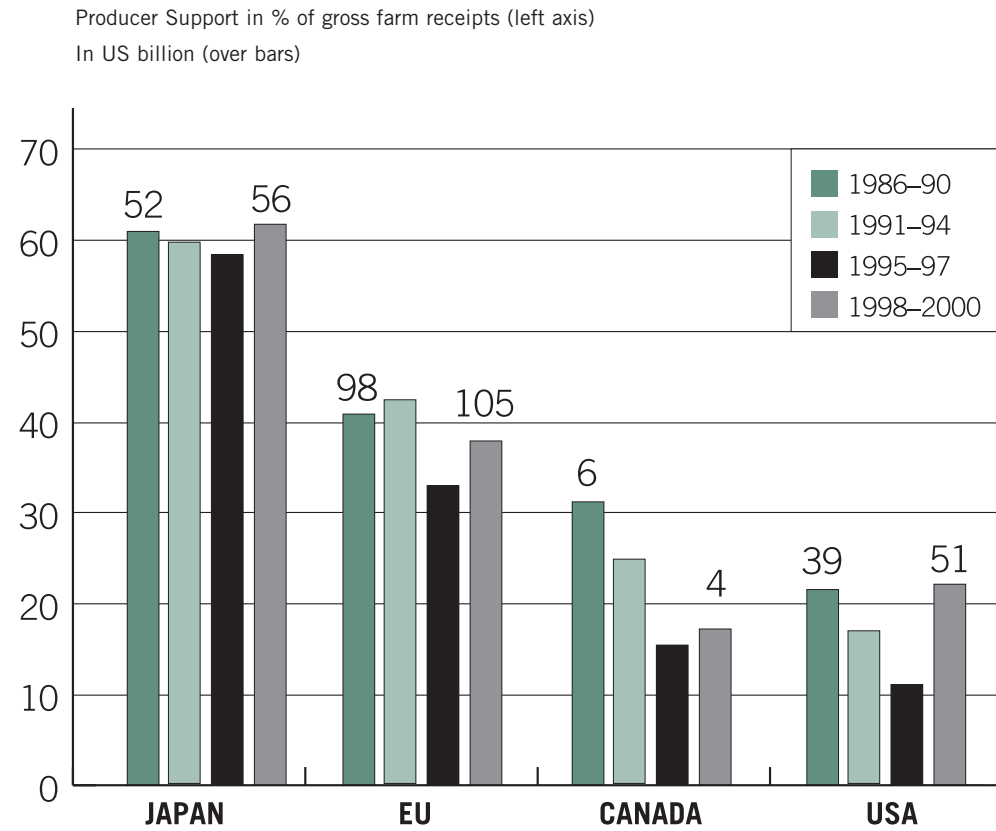
As mentioned in chapter 2, the world's agricultural markets are grossly distorted by policies of both rich and poor countries. Domestic support measures for farmers are found mostly in the Quad countries (the European Union, the United States, Canada and Japan). The share of gross farm receipts from such measures are as high as 40 per cent for the European Union and 60 per cent for Japan, and about 20 per cent in North America (Figure 4.1). In addition, farmers in those countries are supported by import tariffs (Figure 4.2). Notice as well from Figure 4.2 that tariffs on agricultural imports are also very high in developing countries, especially those less able to export agricultural products. Indeed they are not much lower than those of high-income countries. That is, poorer countries seeking to exploit their comparative advantage in exporting agricultural goods face barriers not only into rich-country markets, but also into food markets of other developing countries.

The latter point is important because an increasing share of developing country exports go to other developing countries. As can be seen from Figure 4.3, that share has been rising steadily over the past three decades, and as much for agricultural products as for other goods. Participation in agricultural trade reform by developing countries themselves, as well as by developed countries, is necessary if efficient farmers in the poorer countries of the IOR are to benefit from the next WTO Round.

In addition to agricultural tariffs being high, they escalate with the degree of processing of those products. In 1998-99, the average tariff on fully processed agricultural products was a full 10 percentage points higher than on unprocessed goods (World Bank 2001, Figure 2.6). That makes it more difficult for poorer countries to compete in value-adding activities, and provides a further source of potential gain from agricultural trade reform.

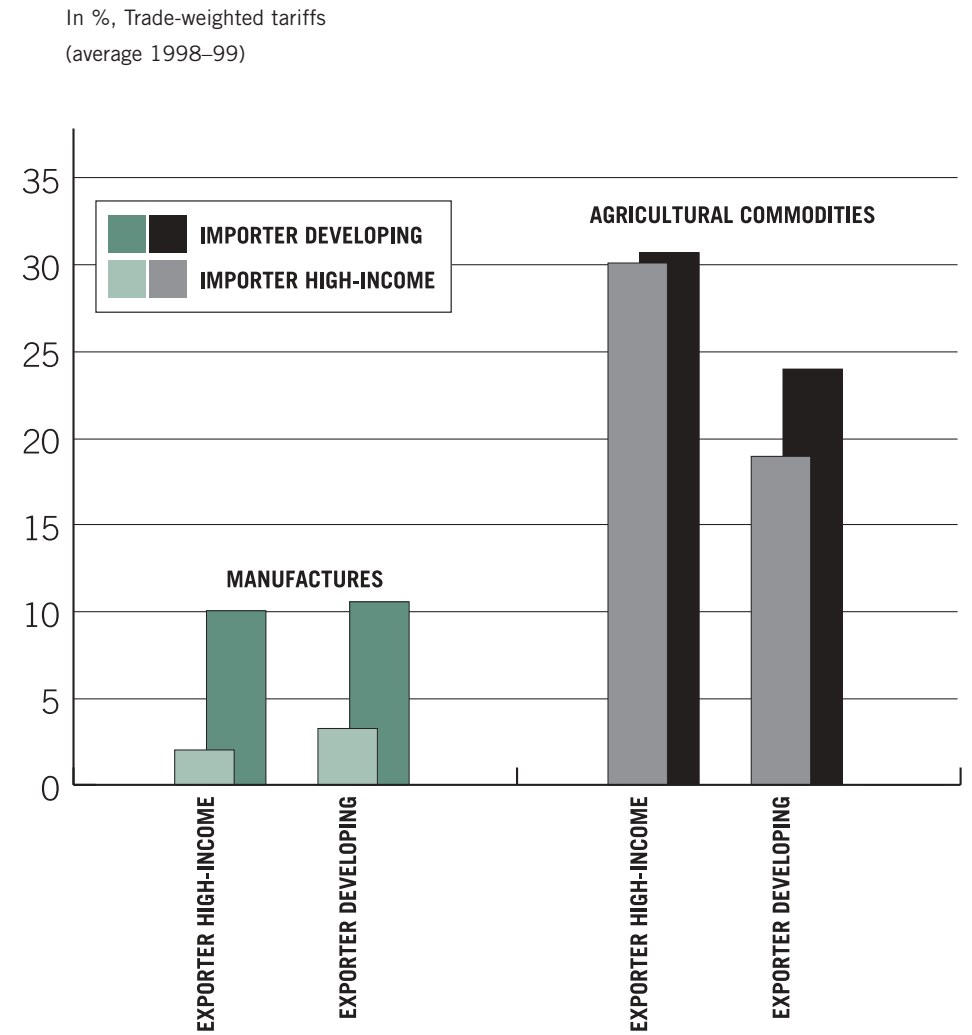
The task of negotiating a lowering of those tariffs should not be underestimated. This is because of the complexities that were introduced into the UR Agreement on Agriculture, most notably the condoning of so-called tariff quotas (in addition to domestic and export subsidies). Tariff quotas allow a certain volume of imports at low or zero tariffs, while additional imports are subject to a much higher (sometimes prohibitive) tariff. The administration of those quotas by bureaucrats also ensures quotas may not always be filled (eg when they are allocated to countries incapable of competing even in the protected market). There are thus several interconnected margins on which those involved in future WTO agricultural trade negotiations must focus simultaneously: the in-quota tariff, the out-of-quota tariff, the quota volume, the overall quota fill rate, and the allocation between countries of shares in that quota. Assuming tariff rate quotas are not going to be outlawed, perhaps the next best hope is to seek increases in the sizes of those quotas and decreases in the out-of-quota tariffs – while also seeking to phase down and eventually outlaw agricultural export subsidies and to cut output-inducing domestic subsidies to producers.

FIGURE 4.1: AGGREGATE MEASURE OF DOMESTIC SUPPORT TO FARMERS IN KEY OECD COUNTRIES, 1986 TO 2000



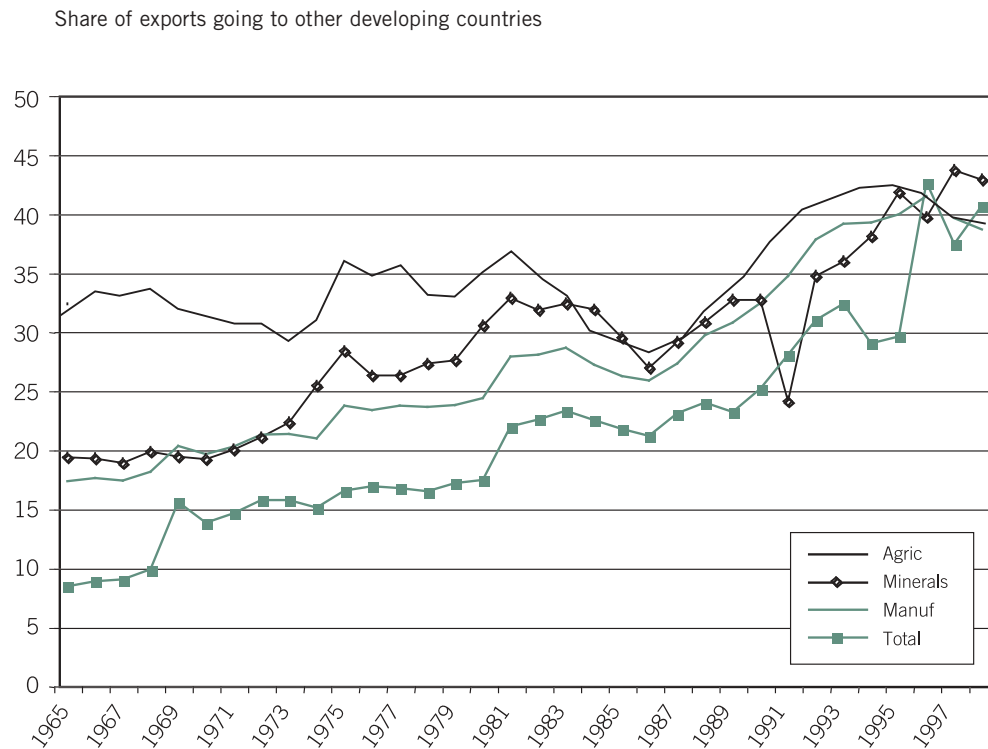
Source: World Bank (2001b, Figure 2.7), based on OECD Secretariat estimates.

FIGURE 4.2: AVERAGE TARIFFS ON IMPORTS OF MANUFACTURES AND AGRICULTURAL COMMODITIES, OECD AND DEVELOPING COUNTRIES, 1998-99



Source: World Bank (2001b, Figure 2.10).

FIGURE 4.3: SHARE OF DEVELOPING COUNTRY EXPORTS TO OTHER DEVELOPING COUNTRIES



Source: Martin (2001), based on the GTAP Version 5 database.

POLICIES ABROAD AFFECTING IOR COUNTRIES' EXPORT PERFORMANCE

4.2 TEXTILE AND CLOTHING TRADE RESTRICTIONS POST-URUGUAY ROUND

Despite the Uruguay Round Agreement on Textiles and Clothing (ATC), trade in those labour-intensive manufactures, as with agricultural products, remains heavily restricted and will continue to be so during the next WTO round. This is because (a) import quotas on at least half the restricted trade will not be removed before the end of 2004 (and several years later for China), (b) even when they are removed, they are to be replaced by very high tariffs, and (c) if that is not enough to prevent an acceleration in trade, there is always the risk that various safeguard measures will be imposed.

Barriers to trade in those products have important implications for relatively labour-abundant developing countries that are rapidly accumulating capital and industrializing, because their comparative advantage is gradually moving from primary products to (initially unskilled) labour-intensive manufactures. That interest of theirs in textile trade is shared by agricultural-exporting developing countries, however. This is because if newly industrializing countries (NICs) could export more manufactures, they would tend to become larger net importers 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 industrialized ones. This suggests scope for the two sub-groups of developing countries to band together and negotiate as a single voice, calling for barriers to both farm and textile trade to be lowered.

Does this last point apply to countries that have some preferential access to industrial-country markets for these and other products? The words and actions of the governments of some poor countries suggest they think it does not. Before proceeding it is therefore necessary to review those preferential policies and their effects on IOR developing countries.

4.3 PREFERENTIAL TRADE POLICIES OF OTHER COUNTRIES

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 (ACP – formerly the Lome 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).¹⁴ As well, there are various regional economic integration agreements, most of which provide for preferential or free trade among member states.

¹⁴ For a discussion of the relative importance of GSP and the ACP preferences, see Kennan and Stevens (1997). A broader discussion of the Quad's non-reciprocal trade agreements involving LDCs, including the latest EU proposal, is provided in UNCTAD/Commonwealth Secretariat (2001, Ch. 2).

POLICIES ABROAD AFFECTING IOR COUNTRIES' EXPORT PERFORMANCE

Table 4.1 summarizes the membership of IOR countries to a number of such arrangements. Virtually all IOR countries are WTO members, with only Seychelles and Yemen still in the process of joining. All the African IOR countries are ACP signatories and (except for Kenya and Madagascar) members of SADC (the Southern African Development Community). All the South Asian IOR countries are part of South Asian Association for Regional Cooperation (SAARC) and of its SAPTA (South Asian Preferential Trading Arrangement). And all the IOR countries of Southeast Asia are part of ASEAN (the Association of South East Asian Nations) and hence the ASEAN Free Trade Area (AFTA), as well as members of APEC (the Asia Pacific Economic Cooperation forum).

To what extent are these arrangements stepping stones or stumbling blocks towards better market access abroad for IOR developing countries? In particular, since virtually all IOR countries are WTO members, how effective are these arrangements as compared with MFN liberalizations under the WTO in delivering benefits to the poorer economies of the IOR (as distinct from just being easier politically for national governments to sign onto)? That question is addressed below with respect to first ACP preferences, then the EU's new 'everything but arms' proposal, and finally regional integration agreements within the IOR.

EU's ACP preferences

Those 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.

TABLE 4.1: TRADE AGREEMENT AND INCOME GROUP AFFILIATION, INDIAN OCEAN COUNTRIES

	WTO	ACP	COM -ESA	SAD C	EAC	SAP TA	AFTA	APE C	LDC	Income group ¹
Australia	X							X		H
Indonesia	X						X	X		LM
Malaysia	X						X	X		UM
Singapore	X						X	X		H
Thailand	X						X	X		LM
Bangladesh	X					X			X	L
India	X					X				L
Pakistan	X					X				L
Sri Lanka	X					X				LM
Egypt	X		X							LM
Iran										LM
Oman	X									UM
United AE	X									H
Yemen	O								X	L
Madagascar	X	X	X						X	L
Mauritius	X	X	X	X						UM
Seychelles	O	X	X	X						UM
Kenya	X	X	X		X					L
Mozambique	X	X		X					X	L
South Africa	X	X		X						UM
Tanzania	X	X		X	X				X	L

¹ L = low income, LM = lower middle income, UM = upper middle income, H = high income as defined by the World Bank (dividing levels being US\$755, \$2,995 and \$9,266 for 1999).

O means WTO observer currently seeking accession.

Sources: WTO (2000) and World Bank (2001).

Such wasteful trade diversion is avoided under non-discriminatory, most-favoured-nation (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.¹⁵ 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 Lome 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 I receive a similar degree of improvement in access to your markets. We know from innumerable empirical studies that, for all but the most open of developing countries, there are far greater prospects for national welfare gains from own-country reform than from greater market access abroad.

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.

¹⁵ 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).

EU's 'everything but arms' preferences

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. It received in-principle, best-endeavours endorsement at the 3rd WTO Ministerial in Doha in November 2001, but without any specific timetable.¹⁶

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). 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).

Several empirical studies of the proposal have already appeared. A World Bank study by Ianchovichina, Mattoo and Olarreaga (2001) compares the EU proposal, from the viewpoint of Sub-Saharan Africa (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, where it is not (e.g. 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 \$0.3 billion per year (a 0.2 per cent boost). This is very similar to a recent estimate by UNCTAD/Commonwealth Secretariat (2001, Ch. 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.

¹⁶ In Paragraph 42 of the Ministerial Declaration (WTO 2001d) it simply says: "We commit ourselves to the objective of duty-free, quota-free market access for products originating from LDCs."

Another World Bank study, by Hoekman, Ng and Olarreaga (2001), uses a partial equilibrium approach and looks at the benefit of the EU initiative for LDCs not just in SSA but 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.¹⁷ 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 \$1.1 billion).¹⁸ 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, Ng and Olarreaga 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.¹⁹

Regional integration agreements

As is clear from Table 4.1, virtually every IOR belongs to at least one regional trade grouping. To what extent can and do such regional integration arrangements (RIAs) provide IOR countries a stepping stone to freer trade for themselves and greater market access abroad? In principle they can be helpful, and more so the larger the number and diversity of the countries included in the group, the greater the proportion of products whose trade is freed within the group, the more other aspects of economic integration are included beyond goods trade (e.g., unrestricted flows of services trade and of investment funds, free movement of people, common domestic standards and regulations, a common currency), and the more open the group is to new members. If genuine regional opening occurs it can be a learning experience and a way of convincing a sceptical public that trade reform need not be overly disruptive relative to the gains it brings. Yet, in almost all the existing cases of RIAs within the IOR, they currently offer little in economic terms. The reasons are several.

First, most of the groupings involve only a small number of members who, even in aggregate, account for only a small proportion of each member's total trade.

Second, the coverage is almost invariably restricted to goods, that is, it excludes services, capital flows and labour movements. More than that, it often excludes some goods, most notably major food products because of their political sensitivity. Since agriculture represents a large part of the tradable production of most developing countries, this is a major limitation.

¹⁷ 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).

¹⁸ 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, Ch. 6).

¹⁹ That blunt message is the theme of a recent report to the Cairns Group (Stoekel and Borrell 2001).

Third, there is little trade and investment complementarity among the economies within each RIA. That is, the export composition of each country does not match well the import composition of its trading partners in the group. On the contrary, the commodity compositions of their exports tend to be very similar, or would be under free trade. Their natural trading partners are therefore outside the group.

Fourth, even where there is some complementarity in trade compositions, the lowest cost import suppliers are not necessarily to be found within the RIA. In that case, a move to preferential or free trade within the group can cause trade diversion which, if severe enough, can be welfare-reducing not only for outsiders but even for some of the countries within the RIA.

And fifth, perhaps even more costly than trade diversion is the risk of diversion of trade negotiator attention towards regional issues and thereby away from the potentially far more economically important issues of access to the country's major markets outside the region.

This is not to say there is no role for a broader grouping covering the much bigger Indian Ocean Region. But even with such a bigger and more diversified group of countries involved, there is far more chance of an IOR-ARC contributing to economic growth within its membership if it continues to resist the temptation to form a discriminatory free-trade area and instead follows the APEC example of seeking to encourage unilateral trade liberalization on an MFN basis (as intended from the outset -- see Dabee and Reddy 2000).

5. DOMESTIC POLICIES AFFECTING AGRICULTURE'S PERFORMANCE



If IOR developing countries, along with the Cairns Group and others, are to be successful in securing further agricultural and textile trade liberalization abroad during the current and subsequent WTO rounds, how well would they be placed to take advantage of those new market opportunities? While space does not allow this question to be explored in detail for each IOR country, a few general comments can be made.²⁰ Consider first South Asia and then Sub-Saharan Africa.

5.1 SOUTH ASIA

Traditionally the national governments of all South Asian countries have adopted policies that have discriminated against their agricultural sectors in favour of import-competing industrial sectors. That is not to say there have been no instances of subsidies to farm inputs or other direct assistance to farmers, but simply that the net effect of government policies as a whole has been to dampen farmer incentives relative to free trade (Athukorala 1999).

Over the past decade or so, the extent of the disincentives against agriculture has diminished somewhat as the South Asian economies began to open up. In Sri Lanka the reforms have been greatest. Agricultural export duties on all plantation crops were abolished in 1992, and tariffs and non-tariff restrictions on imports of manufactures have been lowered substantially (WTO 1995c). Together with domestic policy reforms, this has allowed Sri Lanka's economy to accelerate and become more industrialized (Athukorala and Rajapatirana 2000). In India, following the 1991 reforms restrictions on agricultural exports were relaxed and rice became freely exportable. Also, India's import tariffs fell in the middle five years of the 1990s, from 52 to 29 per cent on average (WTO 1998c). In Bangladesh, too, the 1990s saw substantial tariff cuts, such that the average effective rate of tariff protection fell from around 75 to around 25 per cent; but the effective rate for the agricultural sector remained below that for manufacturing (23.5 versus 30 per cent – see WTO 2000d). Thus an anti-agricultural policy bias still remains in South Asia (Ingco and Kandiero 2001b). This is unfortunate in terms of the efficiency of national resource use, for it means these countries are more food import dependent and/or less able to contribute foreign exchange through agricultural exports than they need to be. More than that, since nearly three quarters of workers in the region are rural, the vast majority of households are poorer than they would be with less government intervention in markets.

²⁰ For detailed discussion of all the key trade-related policies affecting agriculture and other sectors of these economies, see the numerous trade policy reviews by the WTO Secretariat over the past six years (WTO 1995a,b,c,d, 1997, 1998c,d,e, 1999a,b, 2000b,c,d, 2001a,b).

DOMESTIC POLICIES AFFECTING AGRICULTURE'S PERFORMANCE

Given that state of affairs, it is ironic that the commitments made by South Asian WTO members in the Uruguay Round Agreement on Agriculture are so illiberal. As Table 5.1 shows, they have all bound their import tariffs on agricultural products at exceedingly high levels, ranging up to 300 per cent. Admittedly their applied tariffs are much lower (averaging in the range of 19 to 27 per cent), which means restrictions on imports are not entirely prohibitive. Nonetheless, having such high bound tariffs places no effective discipline on future governments, and suggests to the rest of the WTO membership that the region is not yet serious about putting a cap on potential increases in agricultural protection.

Were the governments of South Asia to commit in the next WTO round to further reductions in industrial tariffs and non-tariff import barriers, both agriculture and lightly assisted labour-intensive manufacturing industries such as textiles and clothing would be likely to expand. By how much, and its consequences for net trade balances in food and other products, are empirical questions that are addressed in chapter 6.

5.2 IOR COUNTRIES OF SUB-SAHARAN AFRICAN

The structure of sectoral protection among the Sub-Saharan African countries is less clear-cut. This is because import tariffs and export taxes are only a minor part of the impediments to production and trade, particularly in the least-advanced economies. Of more importance for them are such things as transport and communications infrastructure, particularly in rural areas. Without such infrastructure, getting produce to domestic market centres, let alone to export markets, can be extremely costly. The net effect of these influences, together with such things as implicit agricultural export taxes in the form of excessive parastatal marketing margins, have meant that agriculture has been even more discriminated against by government policies in this region than in South Asia (Krueger, Schiff and Valdes 1991).

Nonetheless, the commitments made in the Uruguay Round Agreement on Agriculture matter. As Table 5.2 shows, agricultural tariffs have been bound at extremely high levels, just as in South Asia. In addition, however, many Sub-Saharan African countries also have other duties and charges applied to agricultural imports. The total average bound rate is therefore well over 100 per cent for all but the South African Customs Union (SACU), and is as much as 400 per cent for some countries (e.g. Mozambique). Again, applied rates are considerably lower but, except for SACU, they are well above (about double) even those of South Asia. Clearly, this limits the prospects for agricultural trade within Sub-Saharan Africa, which adds to the hardship of learning how to produce for foreign markets.

The efforts made to date to reform these economies' trade-related policies have been tentative and partial at best. In Kenya, for example, during the 1990s export taxes on all agricultural products have been abolished, as have many quantitative restrictions on imports, and the structure of import tariffs has been simplified. But "suspended" (or stand-by) tariffs of up to 70 per cent remain, that highest rate applying to maize, rice and milk (WTO 2000b). This protection from food import competition is part of the country's effort to boost food security by remaining food self-sufficient – a strategy that is unlikely

TABLE 5.1: SUMMARY OF URUGUAY ROUND COMMITMENTS IN AGRICULTURE BY SOUTH ASIAN IOR COUNTRIES

	Average (unweighted) bound tariff (%)	Average (unweighted) applied tariff (%)
Bangladesh	188	25
India	124	19
Pakistan	197	24
Sri Lanka	50	27

Source: Athukorala (1999) and WTO (2001c).

TABLE 5.2: SUMMARY OF URUGUAY ROUND COMMITMENTS IN AGRICULTURE BY AFRICAN IOR COUNTRIES

	Average bound tariff (%)	Average bound other duties and charges (%)	Total average binding (%)	Average applied tariff rate (%)
Kenya	100	0	100	44
Madagascar	30	250	280	39
Mauritius	120	17	137	52
Mozambique	100	300	400	na
South Africa (SACU)	40	0	40	7
Tanzania	120	120	240	na

Source: Ingco and Kandiero (2001a).

to succeed (see chapter 7). The manufacturing sector also remains heavily protected from import competition. These and numerous other government interventions, including via continued public ownership of agricultural marketing boards, mean that foreign investors have stayed away despite encouragements such as tax holidays that are designed to attract them.

Even one of the fastest-growing economies in the region, Mauritius, suffers from burdensome government distortions to incentives. It has enjoyed a 6 per cent rate of GDP growth over the past two decades, but much of that has been driven by significant preferential access to developed-country markets first for sugar and since then for textiles and clothing. As those preferences erode, and as wages rise, the Mauritian economy will find it increasingly difficult to maintain its growth rate without opening up and de-regulating more (WTO 2001d).

Prerequisites for this region to become internationally competitive in agricultural markets of industrial countries are improved infrastructure in rural areas and lower applied tariffs on imported agricultural products so that each country can specialize more in what it can produce most competitively. Such lowering of import barriers is necessary if this region's countries are going to negotiate successfully for greater market access abroad, since that process involves reciprocating by opening up one's own markets for products exported by one's trading partners. Doing so in response to requests from trading partners is consistent with not only import growth but also domestic economic growth, as resources move from protected to more-competitive sectors. In particular, such opening up is likely to boost agricultural output in most of Sub-Saharan Africa, since that is where the region's comparative advantage is and is likely to remain throughout the duration of the next WTO round of negotiations (see chapter 2). Which particular segments of the agricultural sector might benefit most is a question that can best be addressed with an empirical economy-wide model, as in chapter 6.



To estimate the likely effects of further liberalizing world trade following the next WTO-sponsored round of multilateral trade negotiations, it is necessary to first project the world economy to 2005. This is the time by which the Uruguay Round commitments will have been fully implemented by developing as well as developed countries, and the most likely earliest date for new reform commitments to begin to be implemented.

In the first part of this chapter, the global economy-wide model known as GTAP (see Appendix 2) is used to project the various economies of the world to 2005 first on the assumption that none of the Uruguay Round commitments are implemented and then assuming all are fully implemented and China joins 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 2005 projection of the global economy, the second part of the chapter uses the GTAP model to examine the consequences of removing the distortions to merchandise trade that will still be in place post-Uruguay Round. We know from documentation at the WTO (2001c) and from recent GTAP modelling efforts that there will still be much to gain 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 chapter reports on another forthcoming publication that reports new results using a more complex version of the GTAP model. It has two additional virtues: first, it includes imperfect competition in some markets and so is able to capture the additional pro-competitive gains from trade; and second, it allows for liberalization in service sectors. These results reinforce and add to those reported in section 6.2.

6.1 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 6.1) and projections of growth in factor endowments, productivity and population to 2005 (based mainly on World Bank numbers -- see Table 6.2), it is possible for the GTAP model to project the world's economies forward. Table 6.3 summarizes the results of such a base-case projection scenario for 2005 on output in IOR and other economies, from which a number of points can be made.

TABLE 6.1: 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
Advanced industrial countries	16.0	13.3	0.3	0.2	1.9	1.6
Developing countries	16.1	14.1	6.3	3.8	16.1	14.0
Northeast Asia	28.3	26.2	2.5	2.5	3.7	3.6
Southeast Asia	23.7	20.5	2.9	1.8	19.5	18.6
South Asia	39.9	32.3	10.2	6.7	59.1	30.5
Sub-Saharan Africa	12.5	9.6	2.1	1.6	13.0	8.4

Source: Francois and Strutt (1999).

TABLE 6.2: GROWTH IN GDP, POPULATION, AND ENDOWMENTS OF PRODUCTIVE FACTORS, BY REGION, 1995 TO 2005 (% P.A.)

	Real GDP	Population	Physical capital	Unskilled labour	Skilled labour
Australia + New Zealand	3.4	0.8	3.0	1.1	0.9
Northeast Asia	2.6	0.2	4.8	-0.1	0.0
Southeast Asia	5.4	1.5	8.4	1.6	6.9
China	7.7	0.7	9.5	1.4	3.9
India	5.0	1.5	5.4	1.9	5.5
Other South Asia	5.3	2.0	5.4	2.7	5.7
United States + Canada	2.6	1.0	3.5	1.0	1.1
Mexico	4.4	1.5	3.5	0.7	5.9
Argentina, Chile and Uruguay	3.5	1.2	3.0	1.5	5.5
Other Latin America	4.4	1.5	3.0	0.7	5.9
Western Europe	2.6	0.0	2.4	-0.2	0.0
Eastern Europe+Former Soviet Union	4.9	0.4	0.7	0.5	0.9
Middle East + North Africa	4.2	2.1	3.2	2.9	5.6
South Africa	3.7	2.0	3.2	2.5	2.9
Other Sub-Saharan Africa	4.3	2.7	3.2	3.2	3.8
Rest of World	4.1	1.4	3.2	2.0	3.0

Source: Anderson and Yao (2001), based on World Bank projections.

TABLE 6.3: CUMULATIVE PERCENTAGE CHANGE IN SECTORAL OUTPUT AT 1995 PRICES RESULTING FROM GLOBAL ECONOMIC GROWTH, 1995 TO 2005

(a) Assuming no Uruguay Round implementation or China WTO accession

	ANZ	NEAsia	SEAsia	China	India	OthS Asia	MidEast/NAfrica	SAfrica	Other SubSahara
Rice	11	39	57	69	39	40	38	49	56
Wheat	54	74	44	76	41	47	57	57	60
CerealGrain	52	74	77	71	36	41	60	49	64
VegFruitNuts	33	44	70	89	69	64	62	35	62
OilSeeds	50	75	79	82	75	80	72	70	87
OthCrops	44	68	80	74	75	77	78	60	112
PlantFibre	66	92	102	88	75	82	80	92	141
Livestocks	45	55	81	110	63	68	66	53	91
OthFoodProd	34	22	44	88	56	60	45	38	47
MeatDairyPrd	26	23	41	91	42	47	40	39	41
ForestryFish	37	16	9	68	44	37	27	31	10
EnergMineral	57	56	88	95	73	76	63	63	57
VegOilsFats	27	31	44	90	54	61	41	35	51
TextileWap	50	20	51	86	61	79	36	39	41
OtherManuf	43	33	90	120	65	68	50	41	43
Services	39	31	70	116	65	68	47	42	39

Source: Anderson and Yao (2001).

TABLE 6.3: CUMULATIVE PERCENTAGE CHANGE IN SECTORAL OUTPUT AT 1995 PRICES RESULTING FROM GLOBAL ECONOMIC GROWTH, 1995 TO 2005

(b) Assuming full Uruguay Round implementation and accession to WTO by China

	ANZ	NEAsia	SEAsia	China	India	OthS Asia	MidEast/ NAfrica	SAfrica	Other SubSahara
Rice	16	38	60	70	37	43	33	53	58
Wheat	57	72	46	78	40	52	56	64	60
CerealGrain	70	72	74	72	36	43	59	54	66
VegFruitNuts	35	44	69	90	65	67	62	38	63
OilSeeds	100	75	71	86	80	97	71	83	87
OthCrops	42	66	87	73	78	94	78	61	118
PlantFibre	55	98	101	94	81	100	80	85	146
Livestocks	54	52	75	106	63	73	65	69	94
OthFoodProd	48	22	43	88	48	64	43	75	49
MeatDairyPrd	40	21	32	93	55	51	40	58	43
ForestryFish	39	16	8	69	44	36	28	32	13
EnergMineral	57	56	91	109	71	82	65	61	62
VegOilsFats	291	35	29	90	52	35	35	91	44
TextileWap	32	15	100	84	111	174	20	30	30
OtherManuf	40	37	88	155	59	112	51	39	43
Services	40	31	70	120	66	79	47	42	40

Source: Anderson and Yao (2001).

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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).

Third, the proportional changes over the decade are very similar in the two scenarios shown in Tables 6.3(a) and 6.3(b): the first showing how the world would be without the Uruguay Round, the second showing it with full Uruguay Round implementation and China in the WTO. 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 the economies of IOR developing countries, perhaps the most significant structural change difference between the two scenarios has to do with textiles and clothing. The densely populated IOR developing countries in Asia are projected to have significantly bigger textile and clothing (and slightly bigger service) sectors because of the Uruguay Round reforms, but smaller output of 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 manufacturing sector would grow somewhat slower following Uruguay Round implementation as that region instead exploits new market opportunities for its more-competitive agricultural products.

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 the modellers assume, like most of their predecessors, that the General Agreement on Trade in Services (GATS) will deliver no significant reforms by 2004.

TABLE 6.4: SELF SUFFICIENCY RATIO BY SECTOR AT THE END OF URUGUAY ROUND IMPLEMENTATION, 2005

(a) Assuming no Uruguay Round implementation or China WTO accession

	ANZ	SEAsia	India	OthS Asia	MidEast/ NAfrica	SAfrica	Other SubSahara
Rice	1.05	1.07	1.07	1.01	0.51	0.81	0.95
Wheat	1.91	0.02	1.02	0.82	0.81	0.51	0.80
CerealGrain	1.02	0.74	1.00	0.99	0.81	0.93	1.01
VegFruitNuts	1.12	0.99	1.04	0.92	1.07	1.13	1.07
OilSeeds	1.03	0.83	1.01	0.98	0.73	0.94	1.08
OthCrops	1.22	1.64	1.04	0.95	0.72	1.43	1.66
PlantFibre	1.92	0.70	0.98	0.90	0.95	1.35	2.07
Livestocks	1.08	0.95	1.00	1.00	0.91	1.00	1.24
OthFoodProd	1.31	1.00	1.08	1.01	0.92	1.06	0.97
MeatDairyPrd	1.50	0.91	1.00	0.94	0.88	0.96	0.87
ForestryFish	1.30	0.94	0.96	0.99	0.96	1.53	1.05
EnergMineral	1.66	0.98	0.82	0.66	2.00	2.12	1.61
VegOilsFats	0.91	1.55	0.90	0.48	0.62	0.64	0.95
TextileWap	0.78	1.14	1.19	1.37	0.89	0.96	0.81
OtherManuf	0.78	0.85	0.85	0.58	0.78	0.86	0.68
Services	1.00	1.03	1.00	0.99	1.00	1.00	0.98

Source: Anderson and Yao (2001).

TABLE 6.4: SELF SUFFICIENCY RATIO BY SECTOR AT THE END OF URUGUAY ROUND IMPLEMENTATION, 2005

(b) Assuming full Uruguay Round implementation and accession to WTO by China

	ANZ	SEAsia	India	OthS Asia	MidEast/ NAfrica	SAfrica	Other SubSahara
Rice	1.04	1.09	1.06	1.01	0.51	0.78	0.95
Wheat	1.65	0.02	1.01	0.83	0.81	0.49	0.80
CerealGrain	0.97	0.75	1.00	0.99	0.81	0.86	1.02
VegFruitNuts	1.09	0.98	1.01	0.91	1.07	1.09	1.08
OilSeeds	1.01	0.83	1.01	0.98	0.73	0.90	1.09
OthCrops	1.11	1.75	1.02	0.95	0.72	1.26	1.70
PlantFibre	1.89	0.66	0.97	0.90	0.97	1.21	2.15
Livestocks	1.06	0.95	1.00	1.00	0.91	1.00	1.25
OthFoodProd	1.40	1.00	1.02	1.00	0.91	1.25	0.99
MeatDairyPrd	1.60	0.87	1.09	0.94	0.88	1.06	0.88
ForestryFish	1.27	0.93	0.96	0.95	0.96	1.49	1.08
EnergMineral	1.68	1.02	0.82	0.60	2.01	2.07	1.66
VegOilsFats	2.26	1.42	0.89	0.42	0.60	0.80	0.90
TextileWap	0.70	1.31	1.43	1.69	0.82	0.91	0.76
OtherManuf	0.76	0.84	0.80	0.59	0.79	0.84	0.67
Services	1.00	1.04	0.99	0.99	1.00	0.99	0.99

Source: Anderson and Yao (2001).

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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), as shown in Table 6.4, 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). What Table 6.4 reveals is a remarkable degree of stability as between the two projection scenarios for IOR 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.

6.2 EFFECTS OF REMOVING REMAINING DISTORTIONS TO GOODS TRADE IN 2005

Having established a base-case projection scenario for 2005, the modellers have examined 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 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 6.5(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 6.5(a) and 6.5(b) for South Asia and Sub-Saharan Africa that are of particular interest in this study, 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 6.5(a)). In particular, agriculture would expand at the expense of 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 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 6.5(a) and 6.5(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.

TABLE 6.5: PERCENTAGE DIFFERENCE IN SECTORAL OUTPUT WHEN ALL MERCHANDISE TRADE DISTORTIONS REMAINING POST-URUGUAY ROUND ARE REMOVED, 2005

(a) In all regions except South Asia and Sub-Saharan Africa

	ANZ	NEAsia	SEAsia	China	India	OthS Asia	MidEast/ NAfrica	SAfrica	Other SubSahara
Rice	19	-9	-12	2	12	9	3	6	5
Wheat	103	-66	-15	14	6	6	42	11	17
CerealGrain	11	-51	-11	14	1	2	30	2	110
VegFruitNuts	-7	1	2	1	1	1	5	-1	0
OilSeeds	-4	-14	16	44	-1	1	-2	0	0
OthCrops	84	-6	0	-2	-2	0	-1	2	45
PlantFibre	-19	29	12	23	-2	0	-3	80	-13
Livestocks	28	-13	-5	4	0	1	61	12	27
OthFoodProd	-17	16	2	1	-1	29	7	0	25
MeatDairyPrd	67	-5	-24	54	1	3	65	3	36
ForestryFish	-2	0	2	1	0	1	4	1	1
EnergMineral	-1	1	0	4	1	2	1	2	-4
VegOilsFats	-20	105	47	-13	-2	-5	-1	-4	-2
TextileWap	-21	37	-1	60	-10	-16	-6	16	-16
OtherManuf	0	2	34	-2	4	11	2	7	-3
Services	1	1	-2	1	0	0	0	2	0

Source: Anderson and Yao (2001).

TABLE 6.5: PERCENTAGE DIFFERENCE IN SECTORAL OUTPUT WHEN ALL MERCHANDISE TRADE DISTORTIONS REMAINING POST-URUGUAY ROUND ARE REMOVED, 2005

(b) In all regions including South Asia and Sub-Saharan Africa

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

Source: Anderson and Yao (2001).

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Third, the output differences between the two reform scenarios for Sub-Saharan Africa suggest this region too would enjoy faster growth in manufactures than in agriculture if it freed up its own trade. For South Africa, that industrial boost would be in less labour-intensive products at the expense of textiles and clothing while for the rest of Sub-Saharan Africa the opposite is true.

And fourth, those adjustments would lead the Middle East and North Africa to shift further away from food and feed production, in which it has a strong comparative disadvantage. Some of their resources (particularly those in Egypt) would instead go into plant fibre (cotton) and textiles and clothing production.

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 6.6(a) and 6.6(b). The 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 IOR developing countries participate in the reform. The consequences for self-sufficiency ratios are reported in Tables 6.7(a) and 6.7(b).

Table 6.8 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.²¹ South Asia's gains are hugely greater if it participates than if it does not: \$14 billion per year compared with just \$1.6 billion if it does not -- despite the fact that South Asia's own liberalization would turn the international terms of trade against itself (that is, raise the average price of imports relative to the average price of exports). The reason is that the region's resources are used so much more efficiently when its own distortionary policy interventions are removed.

²¹ The total global gain of \$257 billion per year is almost identical to the estimate reported earlier in Table 2.8 (\$254 billion), despite different version of the GTAP data base being used for the two studies.

TABLE 6.6: CHANGES IN SECTORAL TRADE BALANCES WHEN ALL MERCHANDISE TRADE DISTORTIONS REMAINING POST-URUGUAY ROUND ARE REMOVED, 2005

(US\$million)

(a) Reform in all regions except South Asia and Sub-Saharan Africa

	ANZ	NEAsia	SEAsia	China	India	OthS Asia	MidEast/ NAfrica	SAfrica	Other Sub Sahara
Rice	73	-370	-2,603	440	1,894	401	-120	-57	24
Wheat	4,651	-14,684	-920	2,178	678	44	2,031	-54	41
CerealGrain	145	-44,265	-3,152	1,714	51	1	106	1,006	1,825
VegFruitNuts	-73	-108	-231	142	63	-15	-48	-133	4
OilSeeds	-41	-440	-221	3,621	119	40	-52	-83	43
OthCrops	4,332	-2,239	-1,980	662	-11	-117	-188	2,568	-2,163
PlantFibre	-113	-1,723	-456	-2,442	31	-36	3,683	-101	717
Livestocks	-94	-267	71	46	6	4	1,331	20	372
OthFoodProd	-7,077	27,269	22	-13,137	-393	3,206	-2,979	4,675	354
MeatDairyPrd	16,851	-29,270	-3,843	11,153	147	126	-16	2,887	560
ForestryFish	-96	76	-1,714	-264	-3	-26	-17	-12	-42
EnergMineral	-560	-1,602	-10,692	7,938	12	-328	-1,284	-755	-117
VegOilsFats	-621	1,871	4,341	-2,151	-93	-78	-593	-162	-23
TextileWap	-2,192	67,816	-5,864	23,648	-7,107	-6,412	191	-1,048	-177
OtherManuf	-11,874	-644	44,514	-25,711	4,627	3,615	-14,855	-5,833	-485
Services	-3,311	-1,420	-17,273	-7,836	-22	-426	12,811	-2,920	-933

Source: Anderson and Yao (2001).

TABLE 6.6: CHANGES IN SECTORAL TRADE BALANCES WHEN ALL MERCHANDISE TRADE DISTORTIONS REMAINING POST-URUGUAY ROUND ARE REMOVED, 2005

(US\$million)

(b) Reform in all regions including South Asia and Sub-Saharan Africa

	ANZ	NEAsia	SEAsia	China	India	OthS Asia	MidEast/ NAfrica	SAfrica	Other Sub Sahara
Rice	31	-395	-2,940	249	2,558	692	-148	-85	-58
Wheat	4,557	-14,685	-1,022	2,191	1,747	157	1,820	-155	-254
CerealGrain	141	-44,286	-3,334	1,697	68	0	73	1,672	1,921
VegFruitNuts	-71	-115	-105	169	-119	-572	-295	-85	897
OilSeeds	-40	-452	-306	3,665	223	-170	-65	-66	64
OthCrops	4,224	-2,211	-2,497	604	-681	-1,987	-346	3,749	1,591
PlantFibre	-105	-1,666	-423	-2,247	-242	-737	3,930	-68	284
Livestocks	-144	-264	69	36	-3	8	1,060	72	1,151
OthFoodProd	-7,218	26,767	-13	-13,068	297	3,506	-2,281	4,593	237
MeatDairyPrd	17,557	-29,316	-3,740	11,246	449	33	-63	-553	-240
ForestryFish	-104	105	-1,783	-266	-237	-149	-59	21	274
EnergMineral	-540	-1,790	-10,932	7,783	-569	-3,376	-3,605	6,446	4,517
VegOilsFats	-643	1,904	6,547	-2,137	-1,195	-588	-626	-142	-46
TextileWap	-2,265	64,548	-6,521	19,212	663	3,468	-1,780	-1,153	-1,522
OtherManuf	-12,112	2,941	44,695	-21,635	-4,990	1,846	-8,852	-11,856	-8,042
Services	-3,269	-1,085	-17,696	-7,499	2,029	-2,130	11,238	-2,390	-773

Source: Anderson and Yao (2001).

TABLE 6.7: SECTORAL SELF-SUFFICIENCY RATIOS WHEN ALL MERCHANDISE TRADE DISTORTIONS REMAINING POST-URUGUAY ROUND ARE REMOVED, 2005

(a) Reform in all regions except South Asia and Sub-Saharan Africa

	ANZ	NEAsia	SEAsia	China	India	OthS Asia	MidEast/ NAfrica	SAfrica	Other SubSahara
Rice	1.25	0.99	0.98	1.00	1.13	1.06	0.55	0.78	0.95
Wheat	3.98	0.06	0.01	0.96	1.07	0.84	0.93	0.52	0.82
CerealGrain	1.11	0.04	0.53	1.12	1.01	0.99	0.83	1.67	1.93
VegFruitNuts	1.07	0.96	0.99	1.01	1.02	0.91	1.07	1.04	1.07
OilSeeds	0.98	0.14	0.83	1.67	1.01	0.99	0.75	0.82	1.09
OthCrops	2.41	0.52	1.65	0.82	1.02	0.94	0.76	1.68	1.55
PlantFibre	1.85	0.08	0.68	0.77	0.97	0.89	1.85	1.02	2.41
Livestocks	1.03	0.96	0.96	1.01	1.00	1.00	1.01	1.00	1.43
OthFoodProd	1.14	0.99	1.03	0.93	1.01	1.27	0.90	1.40	1.00
MeatDairyPrd	2.17	0.69	0.68	1.47	1.10	0.96	0.90	1.35	0.97
ForestryFish	1.25	0.89	0.90	0.98	0.96	0.94	0.97	1.44	1.07
EnergMineral	1.66	0.32	0.88	0.99	0.82	0.58	1.99	1.94	1.66
VegOilsFats	1.97	1.10	1.88	0.64	0.87	0.39	0.58	0.72	0.90
TextileWap	0.57	1.18	1.25	1.31	1.33	1.53	0.88	0.80	0.75
OtherManuf	0.74	1.07	0.97	0.99	0.82	0.64	0.80	0.80	0.67
Services	1.00	0.99	1.02	1.00	0.99	0.99	1.01	0.98	0.99

Source: Anderson and Yao (2001).

TABLE 6.7: SECTORAL SELF-SUFFICIENCY RATIOS WHEN ALL MERCHANDISE TRADE DISTORTIONS REMAINING POST-URUGUAY ROUND ARE REMOVED, 2005

(b) Reform in all regions including South Asia and Sub-Saharan Africa

	ANZ	NEAsia	SEAsia	China	India	OthS Asia	MidEast/ NAfrica	SAfrica	Other SubSahara
Rice	1.13	0.99	0.98	1.00	1.17	1.09	0.53	0.77	0.95
Wheat	3.94	0.06	0.01	0.96	1.17	0.85	0.92	0.46	0.78
CerealGrain	1.11	0.04	0.52	1.12	1.02	0.99	0.83	2.45	2.01
VegFruitNuts	1.07	0.96	0.99	1.01	1.02	0.85	1.07	1.07	1.17
OilSeeds	0.98	0.14	0.83	1.68	1.02	0.97	0.74	0.84	1.10
OthCrops	2.37	0.52	1.62	0.82	1.01	0.82	0.75	2.02	1.86
PlantFibre	1.86	0.08	0.68	0.77	0.96	0.81	1.91	1.09	2.26
Livestocks	1.03	0.96	0.96	1.01	1.00	1.00	0.99	1.03	1.96
OthFoodProd	1.13	0.99	1.03	0.93	1.03	1.33	0.91	1.43	1.02
MeatDairyPrd	2.19	0.69	0.68	1.47	1.12	0.95	0.90	0.98	0.87
ForestryFish	1.25	0.89	0.90	0.98	0.95	0.93	0.96	1.51	1.13
EnergMineral	1.66	0.32	0.87	0.98	0.83	0.45	1.96	2.93	1.85
VegOilsFats	1.96	1.10	2.07	0.64	0.79	0.34	0.58	0.74	0.91
TextileWap	0.57	1.17	1.23	1.29	1.48	1.82	0.85	0.83	0.69
OtherManuf	0.74	1.07	0.97	0.99	0.85	0.75	0.81	0.77	0.63
Services	1.00	0.99	1.02	1.00	1.00	0.97	1.01	0.98	0.99

Source: Anderson and Yao (2001).

TABLE 6.8: 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	953	5,582	6,381	994	5,786	6,630
NEAsia	83,617	-13,397	68,597	83,973	-11,981	70,548
SEAsia	19,144	-6,152	12,416	19,453	-4,893	13,980
China	28,793	3,701	30,849	28,483	4,203	31,161
India	704	368	990	12,554	-4,641	7,539
OtherSAsia	429	303	642	10,309	-3,053	6,217
NthAmerica	7,270	11,139	18,218	7,877	14,162	21,817
Mexico	2,192	-1,687	966	2,258	-1,816	936
SouthernCone	15,703	-3,465	11,482	15,516	-3,490	11,255
OtherLatinAm	1,948	3,506	5,323	1,988	3,688	5,543
Weurope	56,231	-2,653	53,670	56,703	-559	56,404
EEFSU	2,878	6,074	8,810	2,965	6,337	9,175
MidEastNAfr	8,880	-5,697	2,637	9,559	-3,952	5,019
SthAfrica	-257	2,475	2,236	3,574	1,584	5,063
OthSubSahara	-118	723	589	1,195	-696	525
Rest of World	6,874	-1,307	4,709	6,914	-1,294	4,732
TOTAL	235,240	-487	228,516	264,318	-615	256,544

Source: Anderson and Yao (2001).

EFFECTS OF LIBERALIZING AGRICULTURAL (AND OTHER TRADE) POLICIES GLOBALLY

Sub-Saharan Africa's gain when it reforms is only 40 per cent of South Asia's gain. This reflects two facts: first, that the South Asian economies in aggregate are nearly twice as large as the whole of Sub-Saharan Africa; and second, that South Asia's trade restrictions (at least according to the model's database as reported in Table 6.1) are more severe than Sub-Saharan Africa's. When South Africa is disaggregated from Other Sub-Saharan Africa, however, then as shown in Table 6.8 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 6.8: the very considerable gains from more efficient resource use are offset by an adverse terms of trade change when all of those countries expand their agricultural and mineral 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).²² 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 and economic assistance (WTO 2001d).

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. In the latter case, resources might move from the reformed sector to even more inefficient uses, thereby reducing rather than improving the efficiency of national resource use.²³

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.

²² 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).

²³ A variant of that point shows up in column 1 of Table 6.8. It is that Sub-Saharan African countries lose welfare when other countries remove their trade distortions. The reason is that the terms of trade changes encourage more resources in that region to move into already protected sectors and away from ones in which the region has its strongest comparative advantage and least distortions.

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 two other important source of gains from trade reform that are not captured in the above results, namely, pro-competitive gains and dynamic gains. New empirical studies that attempt to capture some of these effects are worth examining briefly by way of concluding this chapter.

6.3 HOW IMPORTANT ARE SERVICES TRADE REFORMS AND IMPERFECT COMPETITION?

Measuring distortions to services trade is fraught with difficulty. Nonetheless, 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. 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 6.8 (where no imperfect competition is assumed) of \$257 billion from totally removing all tariffs on merchandise trade. The distribution of those gains to IOR developing countries is very similar to that reported in Table 6.8: 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 sections of this chapter 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 markups, 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.

6.4 HOW IMPORTANT ARE DYNAMIC GAINS FROM TRADE?

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, and are willing to invest more in aggregate. That applies between countries as well as within them, especially following the reductions in barriers to foreign investment and hence international technology transfers over the past two decades. 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 (2001b, Ch. 6) conducted a study very similar to the one reported early in this chapter, 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 \$257 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.

According to the Food and Agriculture Organisation, per capita food supplies in developing countries increased substantially over the 1980s and 1990s. Within the IOR, that was particularly so for South Asia, but least so for African countries (Table 7.1). Indeed Tables 7.2 and 7.3 show that several IOR African countries actually suffered a decline in per capita food availability over that period and an increase – to very high levels – in the percentage of the population that is undernourished. For the IOR countries as a whole the number still undernourished is well over 100 million.

Furthermore, even well-nourished people sometimes feel food-insecure if their country is becoming more food import-dependent. They point to the concentration of food export suppliers as one of their concerns: between two-thirds and four-fifths of the world's exports of each of the grains, oilseeds and non-ruminant meats come from just four supplying countries (Table 7.4). Another concern, shared with poor consumers even in food-exporting countries, is occasional upswings in domestic food prices. Trade liberalizations at home and/or abroad are often perceived to be contributing to these apparent indicators of food insecurity.

In particular, so-called civil society groups in both rich and poor countries worry at the global level that the Uruguay Round Agreement on Agriculture may be raising the mean and variance of the price of food and restricting the freedom of national governments to pursue policies that reduce perceived food insecurity (see e.g. Madeley 2000). Some also fear that the unilateral opening up and industrialization of large economies such as China, and the imminent accession of China and Chinese Taipei to the World Trade Organization (WTO), will force up food prices in international markets and thereby erode food security in other poor countries.

This chapter examines these and related concerns about the impact that trade liberalization can have on food security. It does so by addressing four questions:

- What is meant by food security?
- How is it affected by economic growth and globalization forces other than trade liberalization?
- What additional or offsetting contribution does trade liberalization make?
- How can food security be most effectively, efficiently, equitably and sustainably promoted?

TABLE 7.1: PER CAPITA FOOD SUPPLIES FOR DIRECT HUMAN CONSUMPTION, 1961 TO 2010

(calories per day)

	1961-63	1979-81	1995-97	2010
World	2300	2580	2761	2870
Developed Countries	3020	3270	3223	3470
<i>Developing Countries</i>	<i>1960</i>	<i>2320</i>	<i>2626</i>	<i>2730</i>
East and Southeast Asia	1750	2360	2676	3060
South Asia	2030	2080	2423	2450
Sub-Saharan Africa	2100	2080	2190	2170
Middle East/North Africa	2220	2840	3021	3120
Latin America/Caribbean	2360	2720	2791	2950

Source: FAO (2000) as compiled by Stringer (2001).

TABLE 7.2: PER CAPITA FOOD SUPPLIES AND IMPORTS, SELECTED IOR DEVELOPING COUNTRIES, 1979 TO 1997

	Calories per day		Percentage change, 1979-81 to 1995-97	Protein per day 1997	Percentage change, 1970 to 1997	Food imports as % of all merch imports, 1997-98
	1979-81	1995-97				
Madagascar	2418	2019	-17%	46	-24%	15
Tanzania	2277	2000	-12%	49	14%	17
Kenya	2146	1977	-8%	52	-19%	14
Mozambique	1922	1782	-7%	35	-0%	22
Sri Lanka	2314	2288	-1%	52	12%	13 ^a
Thailand	2183	2351	8%	54	8%	5
Malaysia	2724	2938	8%	75	48%	6
Bangladesh	1914	2082	9%	45	-5%	15
Mauritius	2669	2923	10%	72	43%	16
Pakistan	2159	2461	14%	61	11%	12 ^a
India	2077	2466	19%	59	13%	6
Indonesia	2176	2900	33%	67	73%	11

^a 1990-93

Source: FAO (2000b), as compiled by Stringer (2001); and UNDP (2000).

TABLE 7.3: UNDERNOURISHED POPULATION BY COUNTRY, SELECTED IOR COUNTRIES, 1979 TO 1997

	Percentage undernourished		Percentage improvement in under-nourished 1979-81 to 1995-97	Numbers of undernourished (million) 1997
	1979-81	1995-97		
Madagascar	18	39	-117	6
Tanzania	23	40	-74	13
Kenya	25	41	-64	12
Mozambique	54	63	-17	12
Sri Lanka	22	25	-14	5
Bangladesh	42	37	12	45
Thailand	28	24	14	14
Pakistan	31	19	39	27
Mauritius	10	6	40	0.1
India	38	22	42	0.2
Malaysia	4	2	50	0.4
Indonesia	26	6	77	12

Source: FAO (2000b), as compiled by Stringer (2001).

TABLE 7.4: SHARE IN WORLD EXPORT VOLUME OF THE FOUR (OR FIVE) LARGEST EXPORTERS, SELECTED AGRICULTURAL PRODUCTS, 1986 TO 1999

	1986-90	1997-99	Countries (in order)
Wheat (incl. flour)	88	76 (86)	US, Canada, Australia, EU With Argentina)
Coarse grain	79	78 (82)	US, EU, Argentina, Australia With Canada)
Oilseeds	83	80 (83)	US, Brazil, Canada, Argentina With Paraguay)
Rice	68	69 (76)	Thailand, US, India, Vietnam With China)
Poultry meat	66	81 (83)	US, EU, Brazil, Hong Kong With Hungary)
Pig meat	52	67 (72)	EU, US, Canada, Poland With Hungary)
Bovine meat	62	62 (68)	EU, Australia, New Zealand, US With Canada)
Sugar	60	57 (67)	Brazil, EU, Australia, Thailand With Cuba)
Fruit & vegetables	35	38 (41)	EU, US, Turkey, Brazil With Canada)

Source: WTO (2000e, Annex II).

While acknowledging that many countries worry if domestic production falls below domestic consumption of food, Section 7.1 suggests the most reliable indicator of improvement in food security is the rate of poverty alleviation, with the rate of food self-sufficiency playing at most a subsidiary role and then only because it influences people's perception of rather than actual food security. Before turning to examine how both food self sufficiency and poverty are affected by trade reform, Section 7.2 summarizes the contributions of other forces of economic growth and structural change to domestic food production and poverty alleviation. Trade liberalization's impact on food security is the focus of Section 7.3. Again there is scope to focus at various levels: global, economy-wide trade and trade-related policy reform; regional reform; and unilateral reform at the national border, and/or sub-national reform, of just food or all trade policies. The Uruguay Round and the APEC 2010/2020 reform commitments are used to focus the discussion at the global and regional levels, while Boxes 7.1, 7.2 and 7.3, on China, Indonesia, and Thailand, illustrate recent and prospective impacts on food security of unilateral national trade reforms.

The analysis suggests trade reform should not be avoided on food security grounds because (a) in most cases such reform will enhance food security, and (b) even in cases where trade liberalization would put at risk the food security of a group of people or even an entire country, there are always complementary domestic policy measures that can be implemented at the time of the trade liberalization to prevent any decline in food security and still leave the country better off.

7.1 WHAT IS MEANT BY 'FOOD SECURITY'?

The term 'food security' conjures up different meanings to different people. Few would argue, though, that a society is food-secure if it has the **capacity to ensure that everyone always has access to the minimum supply of basic food necessary for survival**. Leaving aside the special circumstances of war and natural disasters (where emergency food aid is often needed), an individual, household or nation can thus be food-secure, without relying on handouts, by having access to (a) a certain level of spending power and (b) a well-functioning market for staple foods.²⁴

At the global level, the world has seen the daily supply of calories rise from 2,300 to 2,800 per capita between the 1960s and 1990s. The growth has been even more dramatic in just developing economies and especially those in East and Southeast Asia: from less than 2,000 to more than 2,600 for the former and from 1,750 to almost 2,700 for the latter. South Asia too has enjoyed significant gains since the early 1980s (Table 7.1). These gains per person are particularly impressive given that they took place during a period in which the population in developing countries doubled.

²⁴ The key point, that food security refers to levels of consumption rather than production, was popularised by the seminal work on hunger by Sen (1981). See also Dreze and Sen (1989, 1990) and Ravallion (1997a,b). Sen stresses that entitlement to food can come through own production, exchange, or transfers. The FAO defined food security more expansively at its 1996 World Food Summit as existing "when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life".

BOX 7.1 WHY CHINA'S ACCESS TO OECD TEXTILE AND CLOTHING MARKETS IS SO IMPORTANT FOR THE AGRICULTURAL TRADE OF IOR COUNTRIES

The extent to which China becomes a net importer of food, feed and fibre in the coming decade depends heavily on what access the United States and the European Union provide for China's textile and clothing exporters.

Until recently (late 2001), while China remained outside the WTO, it was not enjoying the accelerated access to US and EU markets that was negotiated in the Uruguay Round's Agreement on Textiles and Clothing (ATC) for WTO members of the Multifibre Agreement (MFA). If the ATC is fully complied with, the latter countries' 'voluntary' export restraints (VERs) on textile products will be abolished at the end of 2004. China's VERs, by contrast, would have expanded less rapidly and still continued after 2004 unless a new agreement was reached.

China's negotiations on its accession to the WTO provided an opportunity to reach a new agreement. With China being admitted to WTO and being allowed to eventually abolish its VERs, its economy will be able to better exploit its strong comparative advantage in light manufactures. This is demonstrated in a recent study using the global economy-wide simulation model known as GTAP. The model was first run to 2005 assuming the Uruguay Round was fully implemented but that China (and hence Chinese Taipei) remained outside WTO and was allowed only to slowly increase its restrictive VERs. That scenario was then compared with one in which China and Chinese Taipei join WTO and, in doing so, enjoy the same opportunity to remove their VERs by end-2004 (although in practise it may be 2008 before China reaches that point, under its newly-signed Protocol of Accession to WTO.)

There is a dramatic difference between those two scenarios in the projected change in size of the agricultural sector in both China and APEC agricultural-exporting countries. In the base case, the share of agriculture in China's GDP falls by 42 per cent between 1992 and 2005, whereas in the alternative scenario it falls by 46 per cent as more resources are attracted to light manufacturing. The opposite is true for ASEAN economies: agriculture's share of their GDP falls 30 per cent in the base case but only 27 per cent in the alternative scenario. These are understandable given that the international prices of food relative to clothing would rise with China's accession to WTO and assumed greater access to OECD textile and clothing markets. Farm households in China need not be worse off though, as the demand for low-skilled labour in rural and urban clothing factories would rise. But it means that in ASEAN and other IOR countries net buyers of food face higher food prices, while their farmers are better off.

This demonstrates the interdependence between the agricultural trade of one set of countries and the trade reforms – in this case of non-agricultural policies – of another set of countries.

Source: Anderson (1990), Anderson et al. (1997b).

BOX 7.2 INDONESIA'S TEMPORARY RE-AGRICULTURALIZATION BOLSTERS THE SECTOR'S ROLE AS AN ENGINE OF GROWTH RECOVERY

As Appendix 1 shows, a common feature of long-term economic growth and structural change as capital accumulates is the relative decline of the agriculture sector. The East Asian financial crisis that began in mid-1997, which involved capital flight and currency devaluation, tended to have the opposite impact on the worst-affected economies, namely that of *increasing* the relative importance of agriculture. Given that, to what extent could agriculture be an engine for recovery? The answer depends to a considerable extent on the policy responses of the government.

Consider the case of Indonesia, where the policy responses in turn have depended in part on the degree of political stability and restoration of investor confidence following the 1999 elections. A recent study, using the global, economy-wide GTAP model, projects the Indonesian economy (and that of the rest of the world) to 2005 without and then with the East Asian crisis, and then shows how the economy would be affected by different Indonesian policy responses.

The projected decline in the share of agriculture and processed food in Indonesia's GDP slows considerably over the period to 2005 because of Indonesia's growth interruption from 1997. The estimated benefits to Indonesia from embracing further unilateral reform, as a way of catching up on those 'lost years', are contrasted with the growth-reducing strategy of reneging on Uruguay Round commitments to liberalize Indonesia's trade. Two growth-enhancing reforms are considered: an across-the-board unilateral trade reform, which reduces slightly agriculture's GDP share, and an agriculture-specific policy reform that reduces under-investment in rural infrastructure and thereby boosts farm productivity, which causes the farm sector to increase its contribution to GDP and employment. Both strategies raise agriculture's share of exports and agricultural self-sufficiency, however.

This empirical study demonstrates that even if growth-enhancing policy reforms reduce the relative importance of agriculture in developing economies, that does not mean their food self-sufficiency need fall. And in so far as such reforms also raise or at least do not lower the income of poor households, they will necessarily increase food security.

Source: Anderson and Strutt (1999).

BOX 7.3 FOOD EXPORT TAXES CAN HARM FOOD BUYERS AS WELL AS SELLERS: THE CASES OF THAILAND AND VIETNAM

Like so many food-surplus developing countries, Thailand for a long time imposed an export tax on food (in its case rice). It did so partly to raise government revenue, but ostensibly also to lower the domestic price of rice for consumers to make this staple more affordable for poor households that are not surplus rice producers. In the process, that tax lowered the producer price and so lowered the real incomes of those rice farmers who had (or would have had at the free-market price) a surplus to sell. The tax was imposed for decades, even though many such farmers were very poor.

However, a recent empirical study, using an economy-wide model, has shown that Thailand's rice export tax also worsened -- rather than improved -- the incomes of the urban poor in that country. This apparently paradoxical result comes about because the rice export barrier reduces the income-earning prospects of unskilled workers, and to a sufficient extent as to more than offset the help that group of workers receives directly in terms of lower food prices. Those poor workers' incomes are reduced because the trade tax lowers the aggregate demand for and hence wage of unskilled labour (the country's most abundant factor of production), not only on farms but also in non-farm activities.

This lesson from trade theory (the Stolper-Samuelson Theorem) and the Thai experience is even more relevant for Vietnam, where rice export restrictions remain severe. There 80 per cent of people still live in rural areas, and they are typically far poorer than the people in urban households. Certainly the majority of rural households would enjoy an income boost if rice trade restrictions were removed. But many of the other poor households in Vietnam also would benefit indirectly because, as in Thailand, the demand for and hence wages of unskilled labour would rise with that reform. The only people who might feel food would be less within reach of their budget are the net food buyers in urban areas who are relatively skilled workers or are capital owners -- and they are of course the most affluent households.

Removing restrictions on rice exports, especially when those restrictions vary from season to season in unpredictable ways, would also bestow a benefit outside Thailand and Vietnam. Reforming that policy (as Thailand has done) would reduce the weight that could be given to the argument by rice-importing countries that the international rice market is unreliable/underpriced because of such export restraints.

Sources: Warr (2001), Minot and Goletti (2000), Anderson (1999).

EFFECTS OF TRADE REFORM ON FOOD SECURITY

A part of their gain in supplies is due to the growth of food imports from the developed economies, however. While domestic basic food output grew faster in developing than developed countries, so too did population and per capita incomes. Hence food demand grew faster than supply in developing countries, causing their exports of basic foods to fall and imports to grow in the 1990s (Tables 7.5 and 7.6). Developing countries' net imports of cereals in particular have grown steadily since the 1960s.²⁵

Does growth in food import dependence by developing (or other) countries represent a decline in their food security? The above definition would suggest the answer is "not necessarily". The level of consumption is the issue, and that critical level may be met without the food having to be produced domestically. For example, imports of food may be more affordable because of rapid domestic growth in non-food agricultural output and/or non-agricultural production. In such cases the only reasons for concern about food security are (a) if the imported food supplies are less reliable than domestically produced food in terms of price or quantity uncertainty/variability, or (b) the benefits of economic growth are so skewed (after taking account of changes in fiscal transfers) as to make some marginal households worse off to the point of forcing them into food insecurity.

With respect to price variability, if a country was already open to imports, or restricted them only with ad valorem tariffs, it would have already been transmitting fluctuations in international food prices to the domestic market. In that case, the only sense in which greater insecurity could result over time is if those fluctuations in the international market have increased. The earlier expectation was that the fluctuations should decrease as countries tariffed their import restrictions following the signing of the Uruguay Round Agreement on Agriculture (URAA) in 1994. However, the late introduction of tariff rate quotas in the URAA dampened that earlier optimism, so it remains an empirical question. The evidence presented in Table 7.7, which shows the variability of monthly prices in international markets of key foods, is mixed: it has gone down more than it has gone up, but not enough to claim unequivocally that there has been an overall reduction in fluctuations. This is clearly an area where further improvement is possible through trade negotiations, because the larger the number of economies with policy measures that insulate their domestic markets, the smaller the international market and hence the greater are international price fluctuations. By so making the international market thinner and more volatile, such policies encourage other economies to follow suit, exacerbating the problem. The way to stop that cycle of beggar-thy-neighbour policy making is to agree collectively to work towards outlawing such protection and insulation policies. That was one of the key objectives of the Uruguay Round, and remains one for the WTO's latest Round of agricultural negotiations.

²⁵ But note from Table 7.6 that (a) this was not so for South Asia, and (b) the growth in net cereal imports by East Asia reversed during the financial crisis there in the late 1990s. The Green Revolution explains the former; reasons for the latter have to do with the temporary income downturn and re-agriculturalization of the crisis-ridden economies (Anderson and Strutt 1999).

With respect to quantity fluctuations, one concern seems to be that with seasonal fluctuations there might be shortfalls so that rice, for example, simply cannot be purchased internationally until the next harvest. Such situations are very rare in practice, and would be even rarer (a) if more importing economies relied on international markets on a regular basis instead of only when they have a domestic crop failure, and (b) exporters restrained from using the exceptions to GATT Article XI which prohibits export restrictions other than taxes.²⁶ In any case, any country concerned with the possibility of such shortfalls can encourage the holding of food stocks above those that would be commercially viable. This form of intervention is explicitly allowed for in Annex 2 of the Uruguay Round Agreement on Agriculture (WTO 1995).

A recent example illustrates the contribution that openness to food imports can make in reducing food insecurity. Bangladesh had a poor rice harvest in 1997 and a massive flood in 1998. Because India removed its ban on rice exports in 1994, Bangladesh was able to freely import rice to cover the shortfall. The net effect was a major reduction in both the price hike and the shortfall in rice availability in Bangladesh, compared with what would have occurred in the absence of that trade (Dorosh 2001).

India, too, has benefited from opening up its grain trade in 1994. Simulations by Srinivasan and Jha (2001) show that, contrary to popular belief, that trade reform has led to greater domestic grain price stability in India.

In short, at least in the absence of large-scale wars, it seems unlikely that food security *actually* decreases when a country becomes more reliant on imports of food, provided the income distribution effects of trade reform are not highly skewed against the poor (a point to which we return shortly).²⁷ Nonetheless, the *perception* that food supplies are less reliable if they are coming from abroad still seems strong, especially in the more populous countries such as India, China and (in the case of rice) Indonesia.

²⁶ One exception is in GATT Article XI.2(a), which permits temporary quantitative export restrictions to relieve critical food shortages in an exporting country. But the WTO's Agreement on Agriculture's Article 12 has added some discipline to that provision. Specifically, it requires that due consideration be given to the effects of such a restriction on WTO members who are food importers, that such affected members be consulted, and that the WTO be notified of the nature and duration of the restriction. Even more discipline may be added in the next WTO round. For example, if it were shown that in the past longer-term customers were being served first and charged less in years of shortfall, perhaps agricultural-exporting economies could be required to provide non-discriminatory access to their supplies of basic foodstuffs. No doubt they would be more willing to comply the more the protectionist economies were willing to lower their farm price supports.

²⁷ There was concern at the end of the Uruguay Round that farm policy reforms by rich countries would leave them less interested in subsidizing food exports/providing food aid to developing countries. In so far as that raised the effective price of food imports for some developing countries, their food security may have been lowered – even though the volume of food they import falls.

What about the risk that quantities of imported food available for consumption may fall dramatically because of an international dispute or war? Economies concerned about that risk may be able to reduce it at lowest cost simply by choosing to have a diversified portfolio of foreign suppliers. Even though a few suppliers provide the majority of global exports of each food, the dominant exporting countries are different for different foods and, in any case, there are many minor suppliers (Table 7.4). The probability of *all* suppliers placing an embargo simultaneously, as in a world war, not only is very low but also is inversely related to the degree of openness. That is, the more economically interdependent nations become, the higher the opportunity cost, and hence the smaller the likelihood, of them going to war. This is a major, if often understated, international public good provided by the WTO, to which agricultural trade still has much to contribute.

There are two important senses in which greater food self-sufficiency is not synonymous with greater food security when the level of self-sufficiency is high only because of food import restrictions. One has to do with the fact that an import barrier is equivalent to a domestic production subsidy plus a consumption tax. The consumption tax component makes food less affordable domestically, thereby *decreasing*, not increasing, food security of poor households. The production subsidy component, meanwhile, raises the income and wealth of farmers, and in proportion to their marketed surplus and landholdings, respectively. The spending power of some of the poorest and therefore least food-secure farmers *may* rise, but it is an extremely inefficient way of doing so since most of the benefit of that protection goes to larger and hence wealthier farmers.

The second important sense in which greater food self-sufficiency is not synonymous with greater food security, when the level of self-sufficiency is high only because of food import restrictions, has to do with input use. High levels of farm price supports are typically in countries that are densely populated with strong comparative advantages in food and other primary products (Tyers and Anderson 1992). That means (a) they use high levels of purchased inputs (fertilizer and pesticides) to compensate for the high price of land, and (b) the raw materials for those inputs typically are imported. In an extreme embargo situation, the latter imports would halt. As well, the skills of the farmers, having used input-intensive techniques for decades, would be debased, making it difficult for them to produce effectively in an input-deprived environment. Hence overall domestic food production would shrink significantly. Clearly, national food self-sufficiency is by no means synonymous with food security in such settings. On the contrary, in some cases it could be described more accurately as an illusion, offering a false or at least exaggerated sense of security.

Notwithstanding the above point, if there remains a strong perception that domestic supplies are more reliable than imported ones, then 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. However, that is equivalent to encouraging the use of all inputs into food production. Yet some inputs are already being overused (e.g., pollutive farm chemicals, if they are undertaxed) while others are grossly undersupplied. A far more efficient way to boost domestic food production would be via a subsidy just to

the latter. Especially effective would be more investment in agricultural research, in rural education, and in infrastructure in situations where, as in so many countries, past under-investment means that such additional expenditure has a high marginal payoff. Simultaneously, production could be boosted in many developing 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.

Finally on the concept of food security, as people get richer they are concerned not just for energy adequacy and nutritional security (FAO 2000a) but also for food safety and quality. Recent food scares in Europe have raised dramatically the profile of food safety issues, leading to calls for more trade restrictions in most cases ('mad cow' disease, beef hormones, GMOs, and even foot-and-mouth disease). Overall, many people concerned about food quality tend to presume domestically produced food is better. This is leading to stricter use of quarantine measures to keep out foreign food, thereby increasing the risk of trade disputes under the WTO's agreements on sanitary and phytosanitary measures and technical barriers to trade (the SPS and TBT agreements). The grounds for such disputes would be the claim that excessive barriers are being erected, beyond those justifiable scientifically or even on the basis of the precautionary principle (Anderson, McRae and Wilson 2001).

In summary, while food security is really about poverty alleviation, there is nonetheless a lingering desire in many (particularly large) food-deficit countries not to become heavily dependent on food imports. With that as background, what can be said about the extent to which (a) economic growth and (b) trade liberalization contribute to food security?

7.2 HOW THE STRUCTURAL CHANGES ASSOCIATED WITH ECONOMIC GROWTH AFFECT FOOD SECURITY

Before turning to trade liberalization's effect on food security, it is necessary to first understand how other forces affect economies as they develop. This is because it is those forces that ultimately lead to (a) demands for measures to boost food security and, as part of that, (b) resistance, on food security grounds, to trade reform.

As explained earlier and in Appendix 1, agriculture's shares of GDP and employment necessarily decline in the course of each country's economic growth. However, whether food self sufficiency (and thereby the perception of food security) declines depends on at least three sets of factors: relative factor endowments, policies affecting agricultural incentives, and rural infrastructure. Land endowment per worker is a crucial determinant of agricultural comparative advantage: the less a country has, the earlier it will become a net importer of agricultural products, other things equal. Achieving that net importer status can be delayed by reducing taxes on farmers, replacing them with subsidies and/or, when the country's farmers lose international competitiveness, providing protection from imports. Likewise, improving rural infrastructure can delay that switch to import dependence. The extent of such

interventions by governments will vary from country to country, but typically the degree of agricultural protection in the past has been greater, the higher a country's per capita income and the greater its comparative disadvantage in agricultural products (Anderson and Hayami 1986, Tyers and Anderson 1992). One of the ostensible justifications for the protection is to prevent a decline in food self-sufficiency and, often just by implication, in food security.

7.3 HOW TRADE LIBERALIZATION AFFECTS FOOD SECURITY

If it is accepted that food security means always having access to the minimum supply of basic food necessary for survival, then the key elements for that, in addition to peace and greater efficiency in the functioning of staple food markets²⁸, is strengthened purchasing power of the poor. That is, enhancing food security is mainly about alleviating poverty. But while ever there remains a perception that food insecurity rises when the level of food self-sufficiency in basic foods falls much below 100 per cent, then the rate of food self-sufficiency is a supplementary indicator to track.

Trade liberalization raises the average level of income in a country because the relative price changes that accompany the reform induce the country's resources to move to where they can better exploit the economy's comparative advantages. But what does that do to the incomes of poor households in particular, and to national food self-sufficiency?

The impact of trade liberalization on income distribution and thereby on poverty is not always clear. The effects of trade policies on capital owners and workers have been studied by trade theorists for centuries, but applying that theory to the real world turns out to be a complex empirical task (Winters 2000; McCulloch, Winters and Cirera 2001). 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 on any changes in net transfers to them (e.g. increased handouts or decreased taxation).²⁹ 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 and aggregate economic welfare. Even so, some observations are nonetheless worth making about the effects on food security of reducing agricultural protectionism globally, as was attempted in the Uruguay Round of multilateral trade negotiations.

²⁸ Trade reform contributes to the functioning of food markets simply by making domestic markets more contestable, and moreover the more government regulations domestically are relaxed at the same time as they are at the country's border.

²⁹ It is essential to take an economy-wide perspective to determine the income distribution effects of trade reform, even if the focus is just agricultural liberalization, when focusing on developing countries where the agricultural sector is such a large part of the economy (Anderson 2001). On some recent empirical attempts to use computable general equilibrium models to provide such estimates, see the proceedings of the World Bank's September 2000 Conference on Poverty and the International Economy, available at <http://www1.worldbank.org/wbiep/trade/povertyconf.html>

TABLE 7.5: GROWTH IN FOOD PRODUCTION, CONSUMPTION, IMPORTS AND EXPORTS BY DEVELOPED AND DEVELOPING COUNTRIES, 1970 TO 1997

(per cent p.a.)

	Developed countries			Developing countries		
	1970-79	1980-89	1990-97	1970-79	1980-89	1990-97
(a) basic food^a						
Production	1.9	0.8	1.1	2.6	3.3	3.5
Consumption	1.6	0.8	0.6	2.8	3.2	3.7
Exports	6.6	2.5	2.4	7.5	7.0	-1.2
Imports	5.9	2.1	1.3	8.6	5.1	3.5
(a) other food^a						
Production	1.7	0.3	0.5	3.4	3.9	4.7
Consumption	1.6	0.6	0.5	3.6	3.9	4.8
Exports	4.7	3.9	5.6	2.9	3.8	3.7
Imports	2.8	3.6	3.2	7.4	2.7	5.9

^a Basic food includes cereals, rootcrops, pulses, oilseeds, livestock products; other foods include sugar, fruits, vegetables and tropical beverages

Source: FAOSTAT.

TABLE 7.6: NET CEREAL IMPORTS BY ASIA AND ALL DEVELOPING COUNTRIES, 1964 TO 1999

(million tonnes p.a.)

	1964-66	1964-66	1964-66	1994-96	1997-99
NE and SE Asia	15	15	15	65	19
South Asia	10	10	10	0	3
All developing countries	17	17	17	104	100

Source: FAOSTAT.

TABLE 7.7: COEFFICIENT OF VARIATION OF MONTHLY PRICES IN INTERNATIONAL MARKETS OF VARIOUS FOODS, 1990-94 AND 1995-98

	1990-94	1995-98
Wheat (HRW2)	6.8	7.9
Maize (US Yellow2)	5.3	12.0
Rice (Thai 100%)	10.3	8.6
Soybean oil	5.5	5.3
Palm oil	9.2	4.6
Poultry meat	4.4	5.0
Pig meat	10.9	11.0
Bovine meat	5.8	5.8
Whole milk powder	9.8	5.1
Sugar	11.0	8.4

Source: FAOSTAT.

The first observation relates to developing economies. Eliminating all agricultural policy distortions in developed countries would raise international prices for agricultural products, which would stimulate production in non-protected countries. According to one recent study (Diao, Somwaru and Roe 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 developing 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 developing 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, Somwaru and Roe (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 developing 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 economies where agricultural trade liberalization means lower domestic prices for agricultural products? Some of these are the advanced industrial economies, where well over 90 per cent of households are net buyers of food. For the vast majority of such households, who are urban based, their country's agricultural import restrictions and export subsidies have a negative effect on their capacity to spend, by keeping the consumer prices of food above what they would otherwise be. That is, trade liberalization by such economies not only boosts the economy in general but also boosts the capacity to consume more food in all households other than the 2-5 per cent that are net sellers of food. It is therefore ironic that agricultural protectionist policies by such countries are so often claimed to be necessary for food security reasons. The only sense in which that claim could be justified is if its citizens believe a greater dependence on foreign food reduces their perception of food security more than the greater abundance of food available to them improves it.

The other economies where agricultural trade liberalization means lower prices for agricultural products are the developing 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 NGOs 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 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.

7.4 HOW CAN FOOD SECURITY BE MOST EFFECTIVELY, EFFICIENTLY, EQUITABLY AND SUSTAINABLY PROMOTED?

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 risk of government failure if stocks were to be managed by an inefficient 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 farm product price supports and import protection. 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.

However, a food production subsidy is equivalent to encouraging the use of all inputs into food production. Yet some inputs are already being overused (e.g., pollutive farm chemicals, if they are undertaxed), while others are grossly undersupplied. A more efficient way to boost domestic food production would be via a subsidy just to the latter inputs. The *de minimis* exemption provision in Article 6.4 of the Uruguay Round Agreement on Agriculture allows developing countries to subsidize up to 10 per cent of the value of production (which is well above what most of them currently provide).

Even more effective could be more investment in the stocks of primary factors used in food production: agricultural research, rural education, and rural infrastructure. 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 developing 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 programs to boost the earning capacity of the poverty-stricken (e.g. 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.



What do the above findings imply for IOR developing countries as they move into the next WTO round of trade negotiations? First and foremost, they suggest those countries have a strong vested interest in working together to push simultaneously for the freeing up of trade in both agricultural and textile products.

Achieving that end will of course require some opening up of the IOR developing economies themselves as a quid pro quo. However, that will benefit rather than hurt 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 committing to reform during the WTO negotiations provides governments with a credible excuse for not giving in to domestic political pressures for policy reform reversals.³⁰

In any case, globalization is raising the rewards to economies choosing good economic governance, *but it is also raising the cost to economies with poor economic governance*. Two key aspects of good economic governance are commitment to a liberal international trade and payments regime, and growth-enhancing domestic policies that are not sectorally biased. Together they will better enable producers to take advantage of prospective export opportunities following the next WTO round of trade negotiations.

Committing to a *permanently* open international trade and payments regime is much more crucial now than even just 15 years ago, because otherwise capital inflows and investments will be only short-term in nature -- and will be susceptible to withdrawal should confidence waver. It is for this reason, and because of the comprehensiveness of WTO agreements, that liberal trade policy commitments under the WTO are so important. They are valued by would-be investors because they involve legal bindings and most-favoured-nation treatment by trading partners.

The extent to which liberalizing one's own trade and payments regime boosts a developing country's economic growth depends importantly also on the domestic policy environment. Sound, predictable, stable macroeconomic policies, and taxation policies that are not sectorally biased, are essential. Past trade and other pro-urban policy biases have discouraged investment in infrastructure and human capital in rural areas. Unleashing the productive potential of the rural sector requires major upgrading of essential rural infrastructure, to lower the transactions costs of doing business there, plus it requires investment in the people involved. The crucial infrastructure includes rural roads, electricity, telecommunications and radio transmission, so that costs of transport, communications and information (about market conditions, new technologies and the like) become more affordable. Investments in these items probably will be more expensive per capita than in urban areas, but that needs to be weighed against the net long-term benefits from expanding output faster from rural areas.

³⁰ Indeed this domestic political effect has been argued to be perhaps the greatest advantage to a government of taking part in WTO negotiations. See, for example, Roessler (1998), Mattoo and Subramanian (2000) and Hoekman and Kostecki (2001).

The crucial investments in people include basic schooling (for girls as much as for boys), basic health services, and agricultural research and extension. Social rates of return from such public investments are very high in most developing countries even when price and trade policies discriminate heavily against the rural sector; hence they are likely to be even higher as and when those policies are reformed. Such investments not only raise farm incomes and so reduce the need for farmers to leave agriculture; they also increase the prospects for those who migrate to non-farm jobs. In both respects, the social tensions that are inevitably associated with rapid economic growth and structural change are lessened.

Efforts to reduce under-investment in rural infrastructure would benefit agricultural production, but they would do more than that. With better transport and communications infrastructure and better-educated workers, rural areas also would be more attractive to investors in low-skill intensive manufacturing and related service activities. Hence we would see clothing factories and the like becoming more common in rural areas. That would boost off-farm earnings of farm households, allowing a more efficient and fuller use of the rural work force particularly in non-peak seasons.³¹ In addition to its contribution to output, such a development strategy would slow the growth in urban pollution and congestion, and reduce the incidence of poverty and hunger (since most of the poor are in or have recently migrated from rural areas).

Preparedness to move further down the reform path would be greater if mechanisms were introduced that increase the sense of food security. There have been criticisms levelled at developed country members of the WTO for what has been perceived as too little help to net food-importing developing countries in the wake of the Uruguay Round's Agreement on Agriculture (see Stevens et al. 2000). A decision taken at the time of that Agreement (see Article 16) promised that assistance would be provided for such countries to assist them in securing imports should they face higher food import prices and/or cuts in food aid.³² Because of that perceived neglect by developed countries, numerous developing countries have been discussing the concept, formally proposed by India, of a 'food security box' for the next WTO trade negotiations round. That concept would allow developing countries more scope for supporting domestic production (including via import restrictions) so as to reduce food import dependence. However, such a proposal has not been welcomed by those WTO members who argue that the WTO must have a single set of rules. Such WTO members may need to make more explicit the point that WTO's current rules do in fact allow plenty of scope for countries to achieve food security objectives by efficient and equitable means other than direct producer price-support policies.

³¹ Evidence of this in East Asia is well documented, most recently in China. See, for example, Findlay, Watson and Wu (1994).

³² Financial aid is likely to be superior to the same value in food aid, since the former gives the aid-recipient country more options such as investing in agricultural research or rural education as ways of boosting food security in the longer term.

Because of a perceived need to promote more efficient ways to achieve food security for all, a call was made at the Third Meeting of the APEC Business Advisory Council (ABAC), in Chinese Taipei in September 1998, for APEC Economic Leaders to take joint action to develop a so-called APEC Food System. The system would better link farmers, food processors and consumers so as to boost the food sector's contribution to the prosperity of the APEC economies. More specifically, its objectives are to ensure the region's resources meet consumers' food needs more efficiently and securely than at present so that the food sector maximizes its contribution to national and regional growth and development (ABAC 1998, Anderson 2000). These goals are seen to require urgent action by government leaders of APEC economies, in collaboration with the private sector, to better facilitate:

- investment in rural infrastructure,
- transfer and dissemination of new technologies, and
- promotion of international trade and investment in food products.

Each of these activities will have a high social payoff on their own so it is not necessary to wait on the first two before reducing trade barriers, for example. However, the interrelationships between them are such that, if they are pursued in parallel, they would reinforce each other and provide an even bigger gain.

Would such a system have applicability in the IOR region? Among the challenges facing the region that might be addressed by such a call for action are the variability in food quantities and prices in some economies, declines in area and quality of arable land (particularly in rapidly industrializing economies), and underinvestment in agricultural research, rural infrastructure and food distribution systems.

Investment in rural infrastructure. The development of more extensive rural infrastructure is an essential and integral part of building a more efficient and robust regional food system. Investments in both physical and human capital are pertinent. Physical capital needs include electricity plus the various forms of transport and communication infrastructures required to improve the efficiency of delivering agricultural inputs to farmers, getting farm outputs to storage and processing plants and to final markets, and keeping farmers and processors informed of changing market circumstances.

Investment in rural education and health. The increasing sophistication of food production, processing and marketing requires increasingly better-educated workers to emerge from farm households. All the empirical research shows that investments in basic education yield a huge return for farm households in two respects. First, for those members that stay on the farm, their decision-making will be closer to optimal the better educated they are. And second, for those that choose to seek off-farm work, they will find a job and adapt quicker and easier, as well as earn more, the greater their schooling. Basic rural health care investments yield a similarly high payoff. And the payoffs are at least as high for females as for males.

The better the physical infrastructure and the better-educated and healthier the rural working population, the greater the scope for rural areas to attract industrial and service sector activities. More such activities in turn would enhance the off-farm employment opportunities for farm households without the need for long-distance migration to large urban centres. The experiences of Chinese Taipei, and before that of Europe, provide historical precedents for this type of development.

International transfer and dissemination of new technologies. Historically, agricultural productivity growth has been even faster than productivity growth in manufacturing (Martin and Mitra 2000). As well, new technologies are capable of making food safer and raising its quality, and of reducing any harm to the environment caused by farming. These properties are valued more and more as people's incomes grow and as the natural environment comes under stress. Such new technologies are not evenly spread across the region though: they tend to be confined to the few (often richer) economies where the innovations have arisen. This is not surprising, for two reasons. One is because the poorer economies spend a much smaller percentage of their agricultural value added on public agricultural research and hence on importing and adapting technologies developed abroad. The other is because the private sector depends on sound property rights law being enacted and effectively enforced before it is willing to invest in producing or transferring many of the new technologies. Hence private agricultural research as a percentage of agricultural value added also is relatively low in poorer economies.

This suggests scope for regional cooperation in distributing information on more efficient and environmentally sound farm and food technologies, in disseminating ways to enact and enforce legislation to better protect intellectual property rights, the environment, and consumers concerned with the safety of food so as to attract more private investment in technology transfer, and in aiding governments in their support of those investments in farm technologies that are under-supplied by the private sector because the gains are too difficult for the innovator or disseminator to capture via the market.

As the IOR-ARC matures over time, elements of the APEC Food System proposal might be considered also in the context of the Indian Ocean region.



One of the most striking features of economic development is the relative decline of the agricultural sector in growing economies. Also typical, particularly of densely populated economies, is a decline in their agricultural comparative advantage as industrialization proceeds. Whether that leads to declines in food self-sufficiency and the value of net imports of agricultural products are moot points: it depends in part on policy trends, which happen often to gradually change from disfavouring to favouring agriculture relative to other tradable sectors over the long term. This appendix seeks to explain these trends, drawing in part on modern trade and development theory that is strongly supported by comparative evidence across economies and over time.

WHY AGRICULTURE DECLINES RELATIVELY AS AN ECONOMY GROWS

A primitive economy with few trading opportunities necessarily has to devote most of its resources to the provision of food. Agriculture's shares of national output and employment therefore start at high levels. As economic development proceeds, however, agriculture's shares of GDP and employment typically fall. This has commonly been attributed to two phenomena: the slow rise in the demand for food as compared with other goods and services as incomes rise (that is, relatively low price and income elasticities of food demand); and the more rapid development of new technologies for agriculture, relative to those for other sectors, which leads to expanding food supplies per hectare and per worker. Some of those new technologies can be imported by a late-developing economy from those more-advanced economies that were similarly endowed in earlier decades with a scarcity or abundance of land per worker, and then adapted relatively easily to local conditions. A third phenomenon contributing to agriculture's relative decline is the rapid growth in modernizing economies in the use of intermediate inputs purchased from other sectors. This arises because the farmer's value added share of output historically has fallen considerably faster than has been observed in non-agricultural sectors.

The effects of the first two of these tendencies in a two-sector closed economy can be thought of as follows. Suppose productivity growth were to occur equally in the two sectors (agriculture and industry). The resulting increase in income would cause demand in both sectors to increase, but not to the same extent because of the lower price and income elasticities of demand for agricultural goods. Agriculture's share of national output is then lower after than before growth even at pre-growth prices, but more so at post-growth prices. Ironically, it would be lower still if productivity growth had been faster in agriculture than non-agriculture (thanks to the lower price and income elasticities of demand for food).

The above could be used to describe the world as a whole, in which case it suggests we should expect a decline in agriculture's terms of trade in international markets, and more so the stronger is productivity growth in agriculture compared with other sectors.³³ In practice that decline is exacerbated by the gradual policy change, from taxing to subsidising agriculture that, in the past at least, so often has accompanied the economic development of nations (Anderson and Hayami 1986; Lindert 1991; Anderson 1994, 1995a). The weight of empirical evidence seems consistent with that expectation, in that agricultural prices appear to have declined considerably relative to industrial product prices during the past century, even after adjusting prices of (particularly non-farm) products for changes in quality (Grilli and Yang 1988).

But what about in an open agrarian economy that can trade all of its products internationally at those terms of trade? Suppose the domestic terms of trade in this agrarian economy, if it were closed to foreign trade, were below the international terms of trade for farmers. Then if the economy were to be opened fully to international trade, the importance of agriculture would increase and the country would export agricultural produce and, with the foreign exchange proceeds, would import industrial goods and services. If productivity growth and/or factor accumulation occurred in this open economy and the international terms of trade remained unchanged, agriculture's share of national product would rise or fall depending on whether that growth was biased toward farm or non-farm production. If that growth was sectorally unbiased, agriculture's share would remain unchanged. However, if growth also occurred in the rest of the world such that the international terms of trade deteriorated, the agricultural sector of the small open economy would decline unless the economy's own growth is biased towards agriculture sufficiently for the quantity changes to more than offset the adverse change in the terms of trade that results from global economic growth. This agricultural bias in productivity growth would have to be even stronger in a large open economy because its own contribution to world agricultural exports would depress the terms of trade even further.

The above assumes all products are tradable internationally. In reality, however, a large part of a developing economy involves the production and consumption of nontradable goods and services. These are items for which the costs of overcoming barriers to trading internationally -- especially transport costs -- are prohibitively expensive. The price of nontradables is determined only by domestic demand and supply conditions because, unlike tradables, in equilibrium the quantity of nontradables demanded has to equal the quantity supplied domestically. Since the vast majority of nontradables are services,³⁴ and since the income elasticity of demand for services tends to be well above unity,³⁵ the demand for nontradables as a group is likely to be income elastic.

³³ Farm productivity growth in the agricultural-exporting rich countries has been comparatively very rapid. In the United States, for example, total factor productivity growth since the late 1940s has been nearly four times as fast in farming as in the private non-farm sectors (Jorgenson and Gollop 1992), and similar performances have been found in Australia and Canada. This has been sufficient only to slow the decline in agriculture in these countries, however, not to prevent it or allow its relative importance to rise. See Martin and Mitra (2000) for a survey of these and other country studies.

³⁴ Globally, sectoral exports in 1995 accounted for about 48 per cent of the agricultural sector's value added, about 51 per cent of manufacturing value added, but only about 7 per cent of services value added (World Bank 1997; WTO 1997).

³⁵ See Lluch, Powell and Williams (1977), Theil and Clements (1987) and Falvey and Gemmill (1994).

To see how taking into account the existence of nontradables alters the above conclusions, think of the two tradable sectors as comprising one super-sector of tradables and the rest of the economy as comprising nontradables whose demand is income elastic (which means the demand for tradables as a group must be income inelastic for their weighted average to sum to unity). Then if both sectors enjoyed equally rapid productivity growth, the demand conditions would ensure that the GDP share of tradables declines with economic growth. And if, for the reasons mentioned above, agriculture's importance is likely to decline within the tradables super-sector, it is even more likely to decline in relative importance in the total economy. Thus even for an open economy with an exceptionally dynamic farm sector, retaining resources in agriculture over the long term is unlikely; in fact, they will tend to be retained only in economies that are accumulating/importing non-farm resources relatively slowly and/or are suffering very slow productivity growth in their non-agricultural sectors, *ceteris paribus* (Anderson 1987).

The above reasoning is sufficient also for explaining the decline in agriculture's share of employment unless labour productivity is much slower in agriculture than in other sectors. Official data imply that agriculture's share of employment has not been declining as rapidly as the GDP share in growing economies.³⁶ The latter should not be seen as a sign of relative deterioration in labour productivity in the agricultural sector, however, as more care is needed in measuring farm labour input. Specifically, the proportion of farm household labour time spent in non-farm activities needs to be counted as agricultural only to the extent the household's output is attributed to the agricultural sector. Typically in practice the recording of output is appropriately amended faster than the recording of employment as household activities change, and so the decline in agriculture's share of employment tends to be understated more in national accounts than the decline in the GDP share.

This decline in agriculture's GDP share results partly because post-farm gate activities, such as taking produce to market, get commercialized and taken over by specialists in the service sector. In such cases the farmers receive a lower price, in return for which their households spend less time going to market. Another contributing factor is that previous manual farm jobs, such as spreading manure and weeding crops, disappear as farm chemicals become more profitable, available and affordable with higher-yielding crop varieties, the seeds for which also have to be purchased in the case of hybrid or genetically modified varieties. As a result, value added by the farm household's own labour, land and capital, as a share of the gross value of agricultural output, falls over time as purchased intermediate inputs become more important. In fact, Anderson (1987, Table 2.1) provides evidence showing that the value-added share typically falls much more for agriculture than for the industrial sector. This increasing use of purchased intermediate inputs and off-farm services by farmers adds to the relative decline of the farm sector per se in overall GDP and employment (Timmer 1988, 1997; Pingali 1997).

³⁶ For low-income countries the share of agriculture in GDP fell from 34 to 25 per cent between 1980 and 1995, while the share of the labour force in agriculture as measured declined only slightly (from 73 to 69 per cent between 1980 and 1990 – World Bank 1997).

One might also expect agriculture's share of exports to decline with economic growth, although with less certainty than for agriculture's shares of GDP and employment. To see this, consider again an open economy in a world in which the international price of agricultural relative to other goods is declining over time because of economic growth abroad. If this open economy is growing and if its output growth is insufficiently biased towards the non-farm sectors to match the non-farm bias in domestic demand growth, agriculture's share of exports may not decline: excess supply may grow more rapidly for farm than for non-agricultural products. But if this economy is not growing or its growth is concentrated in non-farm sectors, agriculture's share of the value of its exports would decline, in part at least because of the decline in the relative price of agricultural products internationally.

WHY AGRICULTURAL SELF SUFFICIENCY MAY OR MAY NOT DECLINE WITH GROWTH

What determines whether a country is a net agricultural exporter or importer at a point in time? And how will that position change over time? A nation's self sufficiency in agricultural products depends largely on its relative factor endowments compared with the rest of the world's (the key determinant of agricultural comparative advantage) as well as on government policies at home and abroad. Leaving the latter aside for the moment, how can we conceptualize the impact of the former on a country's trade composition?

The role of relative factor endowments

Perhaps the most appropriate simple model for explaining agricultural comparative advantage in a growth setting is that developed by Krueger (1977) and explored further by Deardorff (1984a). They consider two tradable sectors each using intersectorally mobile labour plus one specific factor (land or industrial capital). Assuming labour exhibits diminishing marginal product in each sector (and assuming for the moment that there are no other primary products, no services or nontradables, and no policy distortions), then at a given set of international prices the real wage is determined by the overall per worker endowment of land and industrial capital. The commodity composition of a country's trade (that is, the extent to which a country is a net exporter of agricultural or industrial products) is determined by its endowment of land relative to industrial capital compared with that ratio for the rest of the world.

Leamer (1987) suggested using a triangle as a way of summarizing the relative resource endowment ratios of different economies. Think of the three factors of production as arable land, labour time and produced capital. On the assumption that the stock of farm land is fixed (or changes at the same rate in all economies), rapid growth by one or more economies relative to others in their availability of produced capital per worker would cause those economies to strengthen their comparative advantage in non-agricultural products. The more significant those economies are in the world economy, the more their expanded stock of capital would boost the world average stock and thereby weaken the slower-expanding economies' comparative advantage in non-agricultural products, *ceteris paribus*.

There are several ways to make the above model more realistic. One is by adding other natural resources (minerals, forests). It follows that the more abundant a country's per worker endowment of other natural resources compared with arable land and industrial capital, the stronger will be its comparative advantage in primary products other than food crops. That more realistic model also offers more scope for understanding changes in comparative advantage over time. For example, a discovery of minerals or energy raw materials, or an increase in the international price of minerals or energy, would strengthen the country's comparative advantage in mining and weaken its comparative advantage in farm and other goods, *ceteris paribus*. Likewise, new investment in dams to build export-oriented hydro-electric power stations would have a similar de-agriculturalization effect. It would also encourage mobile resources to move into the production of nontradables as their demand strengthened and prices rose, further reducing agricultural and industrial production.³⁷ On the other hand, net deforestation simultaneously depletes the stock of trees and natural forest land and increases the potential area of land for plantation cash crops (assuming all the potentially arable land had already been cleared), thereby eventually strengthening the country's comparative advantage in agriculture as a whole, *ceteris paribus*, even though within the sector food crops may lose some of their competitive edge to plantation crops.

Domestic or foreign savings can be invested to enhance the stock and/or improve the quality not only of industrial capital but also of labour or natural resources, in addition to providing capital specific to the nontradables sector. Any such increase in the net stock of produced capital per worker will put upward pressure on real wages. That will encourage, in all sectors, the use of more labour-saving techniques and the development and/or importation of new technologies that are less labour intensive. Which types of capital would expand fastest in a free-market setting depends on their expected rates of return. The more densely populated, natural resource-poor a country, the greater the likelihood that the highest payoff would be in expanding its capital stocks for non-primary sectors. At early stages of development of such a country with a relatively small stock of natural resources per worker, wages would be very low and the country would have a comparative cost advantage in unskilled labour-intensive, standard-technology manufactures. Then as the stock of industrial capital grows, there would be a gradual move toward exporting more capital- and skill-intensive manufactures. Natural resource-abundant economies, on the other hand, would enter manufacturing at a later stage of development. Such economies are likely to have remained more than fully self sufficient in agricultural products for longer (although less so the greater their comparative advantage in minerals or other primary products, *ceteris paribus*), and their first industrial exports would be comparatively capital intensive.³⁸

³⁷ (Corden 1984). In fact the increased demand for nontradables (and other products) would begin as soon as expectations about future income prospects rose, which could be well before the export boom shows up in the trade statistics in the case where the exports are preceded by FDI inflows for investments with a long lead time (Corden 1982).

³⁸ Notwithstanding its popular media coverage, the theory of 'competitive' advantage espoused by Porter (1990) does not supersede this theory of comparative advantage based on relative factor endowments. Warr (1994) explains why, noting that the confusion arises because while both are concerned with international competitiveness in a global context, the former applies to firms within an industry or sector (which focus on their private costs and benefits alone) whereas the latter is concerned with the competitiveness of industries and sectors from a national viewpoint, taking account of all (including social) costs and benefits. The theory of comparative advantage in its simplest form is based on numerous assumptions that, as critics never tire to point out, are unrealistic. However, the basic thrust of the theory survives when

What determines the extent to which a country's agricultural exports will be unprocessed rather than processed products, low quality rather than high quality, and non-perishable rather than perishable? The capital intensity of production of the latter will play some part, but most of the explanation will have to do with the cost/speed of in-country transportation and communications, with packing, grading and storage facilities, with sea and air port facilities, and with the volume of domestic urban sales of processed, high-quality and perishable products. The latter sales volume is important because it provides the derived demands for processing and distribution services which, when sufficiently large, allow economies of scale to lower the price at which the more sophisticated products can be made available for export.

A final small point to keep in mind has to do with the way that food self-sufficiency is measured. Typically, policy makers concerned about food security measure it as domestic production as a percentage of domestic consumption in volume terms (aggregated using constant prices) or, if they are especially conscious of the needs of the poorest people, in calorie terms. Simply focusing on whether the gross value of net food exports is positive could be misleading, however, because exports may be intensive in the use of imported intermediate inputs (farm chemicals and feedstuffs) and yet contribute very little value added.

The role of policies affecting agricultural incentives

The above expectations about agricultural self-sufficiency drawn from the theory of comparative advantage are based on the assumption of no interference in markets by governments. Yet most economies intervene in markets and thereby alter incentives facing producers and consumers of food.

From a national viewpoint, four levels of intervention can be distinguished. One is intervention abroad by the governments of other economies' that incidentally alters a country's terms of trade and, in so doing, introduces sectoral or geographic biases. Another is intervention at the national macro level to encourage savings and investment, which again could involve sectoral or geographic biases. Those macro interventions include the provision of price stability (i.e., low inflation), responsible fiscal policies, the optimal regulation of an open financial market, law and order including for the establishment and protection of property rights, the optimal provision and geographic distribution of public goods such as infrastructure, and optimal policies to offset externalities. The third level of intervention has to do with the biasing of domestic prices in favour of non-tradables via an overvalued currency (or, less commonly, in favour of tradables via undervaluing the nation's currency). And the fourth level of intervention has to do with altering output and input prices within the grouping of tradables sectors so that some tradables sectors enjoy more effective assistance from the government than others.³⁹

these assumptions are relaxed (Ethier 1984) and the theory is made dynamic (Grossman and Helpman 1991), and strong empirical support from a wide range of countries can be found for the theory (Balassa 1979; Anderson 1983; Deardorff 1984b; Leamer 1984). Its relevance to developing countries is made clear in Krueger (1984).

³⁹ As Corden (1994, Ch, 15) makes clear, these levels are useful in sorting out the different uses people make of the term "international competitiveness", which could apply to all sectors, to just the grouping of sectors producing tradables, or to just one or a subset of those tradables sectors.

The fact that sub-optimal market intervention by governments is rampant would make it difficult to qualify the above conclusions from comparative cost theory, were it not for the fact that governments intervene in a fairly consistent fashion. Five empirical features of intervention are worth mentioning. First, policies in high-income economies tend to overprice agricultural relative to nonagricultural products while policies in lower-income economies tend to underprice them (Johnson 1991; Bautusta and Valdes 1993). Second, the degree of overpricing (underpricing) is highly positively correlated with the degree of agricultural comparative disadvantage (advantage) (Tyers and Anderson 1992, pp. 76-77). Third, over time economies tend to gradually change their policy induced distortion pattern away from negatively to positively assisting farmers and from effectively subsidizing to hurting food consumers (Anderson and Hayami 1986). Fourth, much of the disincentive to agriculture in developing economies comes not from direct underpricing but indirectly via manufacturing protection and overvaluation of the nation's currency (Krueger, Schiff and Valdes 1988). And fifth, most national governments have an urban bias in their provision of public infrastructure (electricity, transport, communications, etc.) and human capital (education, health, information production and dissemination, etc.) which decreases but rarely reverses with economic development, especially when the quality of those investments is properly accounted for (Schultz 1980). These transitions tend to occur at a faster rate the faster an economy is growing and, in the case of relative price distortions, to reach the point of intersectoral policy neutrality (before becoming supportive of agriculture) at an earlier stage of economic development the weaker a country's agricultural comparative advantage (for reasons suggested in Anderson 1995a).

According to one set of pre-Uruguay Round estimates, the net effect on international prices of temperate foods of their relative overpricing in rich economies was almost exactly offset by the underpricing of those products in poorer economies in the 1980s at least (Tyers and Anderson 1992, Ch. 6). But that is less likely to be the case for edible oils and natural fibres, and it would certainly not be the case for beverages and other tropical products not produced in high-income economies: in both of these latter cases, the underpricing domestically in developing economies dominates, causing international prices for these products to be higher than they would be under global free trade.

Three important consequences follow from these facts. One is that economies are trading less in agricultural products than would be the case without intervention: economies with a comparative advantage in farming tend to be exporting less, and those with a comparative disadvantage in farming tend to be importing less (and may even be depressing international prices further by using export subsidies to dispose of protection-induced surpluses, as in Western Europe). Another is that the relative price of agricultural products in international markets has been under even greater pressure to decline in the course of global economic growth than suggested in the discussion above, as more upper middle-income developing economies have gradually move away from taxing to subsidizing farmers. And the third consequence of these facts is that it has left ample scope to reform policies affecting farmer and consumer incentives, the effects of which will depend heavily on the pace and nature of multilateral, regional and unilateral reforms in the various commodity markets. It is conceivable, for example, that an

increase in net farm imports by high-income economies following the recent Uruguay Round and WTO's next round could coincide with an increase in net exports of agricultural products from developing economies undertaking unilateral reforms, and have offsetting effects on international farm prices but reinforcing effects on quantities traded as both sets of economies better exploit their respective comparative advantages. And the discipline placed by the Uruguay Round on developing and transition economies (including those subsequently acceding to the WTO) not to raise farm producer or export subsidies will reduce the likelihood that, as bound agricultural tariffs are lowered, agricultural disincentives are replaced by protectionist policies in the future.

The role of policies affecting light manufactures

The trade policy bias in favour of import-substituting industrialization, discussed above, has a similar effect on unskilled labour-intensive manufacturing in a newly industrializing economy as it does on agriculture. Limiting imports through protectionism reduces the demand for foreign currency and thereby causes the real exchange rate to appreciate. That effectively holds back the development of *all* industries otherwise able to export,⁴⁰ including those light ones in which a poor country's manufacturing comparative advantage will first emerge. They are the very industries most likely to benefit from relocating or establishing in rural areas to take advantage of lower wages and other costs of production there. Hence not only agriculture but also rural industrialization is hampered by all-too-common protectionist import-substituting industrial policies.

The role of rural infrastructure investments

Needless to say, the move from subsistence-only agricultural production to having a marketable surplus of food, and the emergence of cash cropping, depend on the provision of rural roads, radio, post and telecoms to lower the cost of transport, information and communication. Constructing and maintaining those infrastructures, and rural electrification, provide off-farm work for farm households, but more importantly those infrastructures spawn additional new service-sector jobs in rural areas and elsewhere for transporting, grading, processing, packing, and distributing the marketed agricultural products. The opening up or extending of rural roads and communications, and investments in irrigation, also expand the effective demand for purchased farm inputs such as improved seed varieties, chemical fertilizers, pesticides, farm machinery, and fuel.

Rural roads, electricity and telecommunications also make rural industrialization more profitable for unskilled labour-intensive industries not connected to primary sectors. True, those roads also make it easier for rural workers to drift to urban areas, which would close the urban-rural wage gap somewhat. But many workers will stay put because, for much of the year, they are fully occupied in seasonal farm work. Manufacturing activities that have the flexibility to close temporarily during peak rice transplanting and harvesting periods would be especially likely to be attracted to rural areas. The more that rural industrialization is successful, the more the country's comparative advantage would move away from the primary sectors.

⁴⁰ For more on how protection against imports effectively taxes exports, see Clements and Sjaastad (1984).

The new jobs created by those off-farm activities have been shown to contribute substantially not only to economic growth but also to reducing absolute poverty and rural-income inequality in many modernising agrarian economies (Findlay, Watson and Wu 1994; Lipton and Ravellion 1995; Mellor 1995). They also slow the growth of urban pollution and congestion.

All of this suggests a high social rate of return to investments in rural infrastructure, and more so the less government price and trade policies discriminate against primary and light manufacturing sectors. The returns would be higher the freer the economy is of government interventions in general for two reasons. One is that being located near policy makers so as to lobby for special protectionist favours would then not be an issue. And second, in the presence of protection, manufacturers sell mainly to domestic consumers and buy inputs from other domestic producers. Those linkages encourage a concentration of manufacturing in the cities. By contrast, in an open economy most sales are exports and many inputs are imported so, together with higher property prices, congestion and pollution in cities, those factors can eventually encourage rural industrialization (Krugman and Livas 1996; Krugman 1998). This new theory of economic geography suggests a government can slow or reverse the growth of large urban cities by freeing trade and boosting rural infrastructure.

Empirical evidence

Both global cross-sectional and Asian (and other) time series evidence provides strong empirical support for the comparative advantage theory outlined above, notwithstanding policy distortions. The negative relationship between agriculture's shares of gross domestic product (GDP), employment (EMP) and exports (EXP) on the one hand, and income per capita (YPC) on the other, are very significant statistically. These shares are also negatively associated with population density per unit of agricultural land (PDA) although significantly so only for the export share equation. The relationships are summarized in the following regression equations, from Anderson (1987), which are based on World Bank data for 70 countries with populations in excess of 1 million (t-values in parentheses):

- (1) $GDP = 87 - 9.9\ln YPC,$ $R^2 = 0.80$
(6.7)
- (2) $EMP = 179 - 18.5\ln YPC,$ $R^2 = 0.80$
(16.6)
- (3) $EXP = 152 - 9.5\ln YPC - 8.5\ln PDA,$ $R^2 = 0.45$
(5.1) (4.7)

The time series evidence for East Asia is even more striking. As Table A.1 shows, agriculture supplied two thirds of Japan's jobs and export earnings and one third of GDP in the late nineteenth century, while today those contributions by Japan's farmers are miniscule. In South Korea and Chinese Taipei, a similar contraction of agriculture has occurred in the second half of this century -- twice as fast as in Japan. And China also has undergone a dramatic decline in the relative importance of its farm sector.

APPENDIX 1: THE CHANGING ROLE OF AGRICULTURE AS AN ECONOMY DEVELOPS

For the less developed economies of Southeast Asia the changes began later, but the same tendencies are clear from Tables 2.6 and 2.7 in the text. The first three columns of Table 2.7 summarize the relative resource endowments of those economies. The large ASEAN economies differ markedly from the South Asian economies. The former are moderately densely populated, rapidly growing and with moderate incomes, while the latter are very densely populated and slowly growing prior to the 1990s with low incomes (although least so for Sri Lanka). The above theory would lead us to expect the first group to have had a moderate agricultural comparative advantage but one that is declining rapidly, and the second group except Sri Lanka to have had an initially weaker but slower-declining comparative advantage in agricultural products.

The final four columns of Table 2.7 in the text support that theory. They show the trends in two indicators of agricultural trade specialization. One is the so-called 'revealed' comparative advantage index, defined as agriculture's share of a country's merchandise exports relative to agriculture's share of global merchandise exports, following Balassa (1965). The other is agricultural exports minus imports as a ratio of agricultural exports plus imports. The latter, therefore, takes a value between minus and plus one, and is zero when a country is 100 per cent self sufficient in agricultural products.

In the middle-income economies of Southeast Asia, where policy distortions against farmers have been reduced but still prevail, the index of 'revealed' comparative advantage in agricultural products has been high but has fallen considerably since the latter 1960s. While the index of net agricultural export surplus is still positive, it has been falling also.

In most of the low-income, slower-growing economies of South Asia, the revealed comparative advantage indexes are well above unity, but they have fallen substantially except for India (where agricultural disincentives recently have been reduced considerably). The net export surplus in agricultural products has diminished and gone into deficit for these densely populated economies, again with the exception of India.

The Middle East is of course strongly dependent on imports of agricultural products, while in the east coast countries of Africa and the islands offshore the story is more mixed. All have a strong 'revealed' comparative advantage in agriculture, and that has strengthened since the 1960s for all but Mauritius and South Africa whose relatively open economies have diversified as they have grown.

In short, the above theory of agriculture's changing role in a developing market economy is well supported by the historical experience of Asian and IOR developing economies.

TABLE A.1: CHANGING IMPORTANCE OF AGRICULTURE IN NORTHEAST ASIA, 1880 TO 1999

Share of agriculture (%) in:

	Employment	GDP	Exports
Japan			
1880	74	38	63
1900	60	29	30
1920	51	22	23
1939	42	15	18
1960	33	13	11
1980	11	4	2
1999	5 ^a	2	1
South Korea			
1956	>70	46	89
1970	50	26	17
1990	18	9	5
1999	12 ^a	5	3
Chinese Taipei			
1953	56	38	92
1970	37	18	21
1980	20	9	9
1996	9	3	4
China			
1952	84	51	55
1965	82	40	35
1978	71	28	25
1990	58	27	16
1999	48 ^b	17	8

^a 1995.

^b 1996.

Source: Updated from Anderson (1990, Table 2.1) using World Bank (2000) and Asian Development Bank (1997).

APPENDIX 2: THE GLOBAL, ECONOMY-WIDE GTAP MODEL AND DATABASE



To examine the potential effects of trade liberalizations on Indian Ocean Rim countries, use is made of the latest 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 which is currently in use by over two 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. Perfect competition and constant returns to scale are assumed for all sectors of each economy in the version used here.

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, labor 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 very largest IOR economies to be shown separately.



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