



Initiative *for* Policy Dialogue

Based at Columbia University 

Working Paper Series

Market Access: Estimating the
Potential Costs and Gains from
the Liberalisation of Trade and
Factor Flows

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Overview

This note is the first part of a series of background papers for 'the Stiglitz/IPD Plan'.

The purpose of these notes is to provide background information concerning empirical research that has been conducted in several of the key issues under discussion within the Development Round of the WTO. The series has three parts:

Part I Market access: The potential gains from liberalising trade and factor flows

- Trade in Agricultural goods
- Services
- Temporary Migration
- Trade in Manufactured goods

Part II: Regulatory harmonisation

- The Singapore Issues

Part III: National Heterogeneity

- The impact of reform on developing countries
- Special differential treatment

1. Introduction

The “Doha Development Agenda” of November 2001 puts poverty-reducing economic growth at the centre of the WTO’s considerations.

If the development focus of the Doha Round is to be a meaningful operating principle, then the overriding task of the Round must be to ensure that the liberalisation agreements promote development in poor countries.

In practise this means prioritising reforms which yield the largest benefits to developing countries; helping governments move towards good trade policies; and dealing effectively with the implementation constraints faced by poor members.

This note attempts to support that task by reviewing the potential benefits and costs of liberalisation across various trade and factor flows.

This analysis is a crucial first step to ensure that priority is given to those elements of the agenda that deliver the largest gains to developing countries.

A thorough survey of the empirical literature on the gains from various WTO proposals has not been done. Time does not permit this to be a thorough analysis, but it is a brief survey of the effects of different liberalisation programs on global welfare. The bulk of useful regional-level empirical studies use computable general equilibrium (CGE) models. These models enable us to observe the effects of various liberalisation experiments on trade volumes, prices, and incomes. Simulations can separately determine the effects of reform on different sectors and on different countries and regions. CGE models have several limitations. They require a large amount of data and rely on a few crude assumptions. Most importantly, they do not incorporate key features of developing countries, such as the high level of unemployment. Most assume away the problems posed by uncertainty; but the absence of risk markets makes risk of central concern in developing countries. Most assume perfect competition, while markets in developing countries may be highly non-competitive. We present these models not because we believe that they provide much guidance on the costs and benefits of trade liberalization, but because they call attention to some of the key issues—and because they have become a point of reference.

Where possible, the specific effects of reform on Commonwealth developing countries have been included. However the empirical evidence

in this regard is thin and most global CGE studies do not disaggregate the effects on small countries beyond the regional level.

This note analyses the potential gains and costs from liberalisation in four areas: agricultural trade; services; the temporary movement of natural persons; and manufactured goods trade.

To some extent the results of the survey give cause for a re-evaluation of the current focus of negotiations. The estimated welfare gains from those negotiating areas which consume considerable attention are estimated to yield smaller benefits than other reforms on which there has been less progress.

Three conclusions which we believe are relatively robust emerge from the empirical survey below.

- Liberalisation of labor markets – in particular allowing a quota of workers from developing countries to work temporarily in developed countries – offers large welfare gains.
- There are significant gains to be realised from the reductions in barriers to south-south trade. In both agriculture and manufacturing the gains to developing countries from liberalisation of trade between themselves are estimated to be greater than those from liberalisation of trade with the OECD.
- There is considerable evidence that poorly implemented liberalisation especially in the service sector, can have negative effects for the poor. Carefully managed implementation and effective regulation will be necessary part of any reform agenda.

The literature surveyed identifies ambiguous effects of agricultural and investment liberalization on developing countries. The reason for the ambiguity will be detailed in the notes below.

This note is not a survey of implementation costs, nor does it attempt to provide any detailed assessment of the 'development impact' of adjustment to new regimes. Those issues are left for following notes.

2 Agriculture

2.1 Introduction

In the Doha Ministerial Declaration, WTO members committed themselves to reform of the main instruments of agricultural protection including “substantial improvements in market access; reductions of, with a view to phasing out, all forms of export subsidies; and substantial reductions in trade-distorting domestic support.” They also agreed that “special and differential treatment of developing countries shall be an integral part of all elements of the negotiations.”

This vision combines wide-ranging reform of the distorted agricultural trade policies of developed countries, and gradual liberalisation in developing countries.

This background note surveys the (at times thin) empirical evidence on the potential costs and benefits associated with the kind of reform envisioned by the Doha declaration. It focuses specifically on the welfare effects of liberalisation for developing countries.

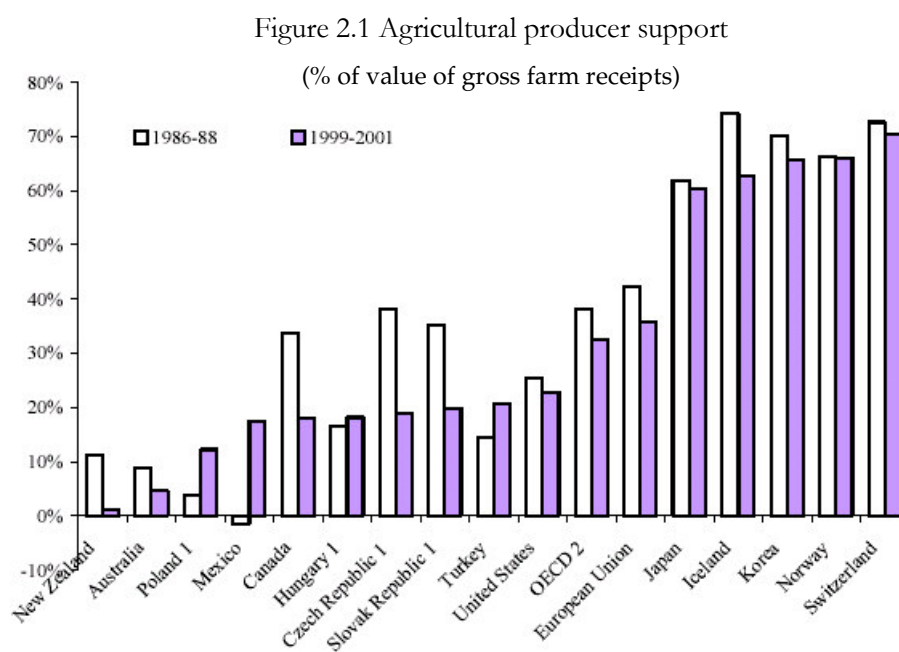
Developing countries face the benefits of increased market access and the (potential) costs of higher prices for domestic consumers. The fundamental point is that consumers benefit from lower prices that result from large agricultural subsidies, and producers lose. The net effect of wide-ranging agricultural reform varies across developing countries depending on the composition of their exports and imports of different commodities, and the price sensitivity of those commodities to liberalisation. As a result, the conclusions of the empirical evidence give cause for caution. A reform agenda which maximises the welfare of developing countries must recognise the specific effects of different protection instruments on different commodities. Developed countries have a large number of instruments by which they can redistribute income. In less developed countries, the set of instruments is far more circumscribed. Since agriculture producers are among the poorest people in developing countries, increasing the prices they receive may be one of the few instruments for alleviating rural poverty. But such policies are, at the same time, likely to increase urban poverty. Tariffs on imports (especially when they countervail

subsidies by more advanced industrial countries), with some of the proceeds use to provide targeted food subsidies may accordingly increase welfare.

Reform should focus on maximising market access benefits and identifying ways of offsetting the terms of trade impact. This requires (i) a rapid elimination of the most damaging protection instruments: export subsidies on commodities that compete with developing countries; (ii) increased market access, particularly for the goods exported by developing countries; (iii) a gradual reduction of production subsidies on sensitive commodities (those imported by developing countries and those with negative price effects on poverty); (iv) assistance for the poorest countries.

2.2 Patterns of protection and trade

While average manufacturing tariffs fell have fallen significantly in recent decades, agricultural protection has remained stubbornly high. The average level of producer support in OECD countries ranges from less than 5 per cent in Australia to 20 per cent in the US and 35 per cent in the EU (figure 2.1). Developing countries face high tariff barriers on many of their agricultural exports – the average tariff on agricultural goods exported to developed countries was 15.1 per cent in 2000 (Hertel et al 2000).



Source: Anderson (2003)

Table 2.1 shows the (projected) levels of farm support in 2005 after the Uruguay Round agreements are fully implemented (Hertel et al. 2000). Tariffs are particularly high in the feed grains, dairy, and food grains sectors. Column 2 shows that dairy products are the world's most subsidised exports followed by meat and livestock. Producer payments are highest for grains and oilseed sectors and lowest for meat, livestock and dairy (column 3).

Table 2.1: Average Protection

This table shows the average protection (per cent ad valorem) for food and agriculture by sector. The figures are worldwide averages in 2005. Subsidy equivalents are aggregated across all regions and divided by exports at domestic market prices.

	Import Tariff	Export Subsidy	Production Subsidy
Food grains	23	1	6
Feed grains	97	4	11
Oil seeds	4	0	9
Meat & livestock	17	8	2
Dairy	23	27	2
Other Agriculture	11	0	0
Other food	1	0	0
Beverages &	18	0	0
Tobacco			

Source: Hertel et al. (2000) page 26

Table 2.2 shows the average tariffs on agricultural goods by importing and exporting region. Developing countries face even higher tariffs on exports to other developing countries (18.3 per cent) than on exports to developed countries (15.1 per cent).

Table 2.2 Average agricultural tariff rates

This table reports the average tariff rates faced by high and low income countries on their own and each other's goods.

Exporting region	Importing region	
	High-income countries	Developing countries
High-income	15.9	21.5
Developing	15.1	18.3
World	15.6	20.1

Source: Hertel and Martin, 2000

A second important determinant of the welfare effects of liberalisation is the agricultural trade balance across countries. Table 2.3 (from Dimaranan, Hertel and Keeney, 2003) reports the average

trade specialization indices for several countries and regions over the course of three decades. These indices give a measure of the trend of agricultural trade balances through time. The value of the index ranges from -1 for a country that imports and does not export a particular commodity, to +1 for a country which only exports.

Table 2.3 shows a division between temperate products (program crops and livestock) where developing countries are largely net importers and developed countries are largely net exporters, and tropical products for which developing countries are largely net exporters. Many of the most developed countries – including the EU, US, Australia and New Zealand – have increased their food trade balance over the last 30 years. Most of the developing countries – Sub Saharan Africa, Latin America (excluding Argentina and Brazil), Indonesia, Mexico, Middle East and North Africa – have actually become more dependent on imports in program crops and meat/livestock.

Table 2.3 Trade Specialization Indices

This table reports trade specialization indices. The index is calculated as $(X-M)/(X+M)$ where X is exports and M is imports for each country. A country that only exports has an index value 1. A country that only imports has an index value -1. The program commodities referred to in this paper are composed of paddy rice, wheat, cereal grains, oilseeds, raw sugar, processed rice, and refined sugar. Livestock and meat includes livestock, wool, animal products, meat, and dairy. Other includes vegetables and fruits, plant-based fibers, other crops, vegetable oils and fats, other processed food.

Year	Program Commodities			Livestock & Meat Products			Other Agr and Food		
	1965-75	76-85	86-98	1965-75	76-85	86-98	1965-75	76-85	86-98
Aus/NZ	0.95	0.97	0.94	0.99	0.98	0.98	0.13	0.10	0.32
Japan	-0.94	-0.96	-1.00	-0.96	-0.96	-0.96	-0.60	-0.67	-0.82
Korea	-0.90	-0.82	-0.90	-0.14	-0.73	-0.85	-0.23	-0.23	-0.21
USA	0.59	0.78	0.81	-0.04	0.16	0.24	-0.08	-0.04	0.00
Canada	0.55	0.72	0.76	0.13	0.32	0.40	-0.18	-0.18	-0.09
Mexico	0.19	-0.87	-0.83	0.03	-0.41	-0.54	0.66	0.56	0.36
EU15	-0.74	-0.56	-0.27	-0.49	-0.05	0.13	-0.48	-0.37	-0.17
EFTA	-0.91	-0.89	-0.76	-0.08	-0.02	-0.04	-0.27	-0.27	-0.08
CEU	-0.51	-0.71	0.03	0.57	0.44	0.50	-0.20	-0.28	-0.15
Turkey	-0.54	0.25	-0.51	0.04	0.55	-0.32	0.86	0.79	0.43
China	-0.17	-0.55	-0.18	0.87	0.69	0.38	0.22	0.36	0.28
Indonesia	-0.57	-0.88	-0.88	0.13	-0.11	-0.30	0.74	0.71	0.52
Vietnam	n.a.	-0.37	0.85	n.a.	-0.65	-0.01	n.a.	-0.10	0.48
ASEAN4	0.58	0.49	0.20	-0.74	-0.30	-0.34	0.48	0.55	0.38
India	-0.58	-0.15	0.43	-0.40	-0.24	-0.10	0.43	0.24	0.44
RSoAsia	-0.59	-0.16	-0.40	-0.43	-0.70	-0.67	0.45	0.13	-0.02
Argentina	0.97	0.99	0.96	0.99	0.92	0.75	0.64	0.71	0.78
Brazil	0.58	0.15	0.29	0.51	0.47	0.35	0.79	0.85	0.66
RLatAm	0.36	0.07	-0.08	-0.17	-0.23	-0.23	0.56	0.56	0.57
FSU	n.a.	n.a.	-0.63	n.a.	n.a.	-0.59	n.a.	n.a.	-0.31
MENA	-0.91	-0.97	-0.94	-0.80	-0.94	-0.87	-0.01	-0.54	-0.45
Tanzania	n.a.	n.a.	-0.40	n.a.	n.a.	0.18	n.a.	n.a.	0.69
Zambia	-0.35	-0.40	-0.40	-0.88	-0.78	-0.59	-0.38	-0.15	0.34

R_SSA	0.39	-0.13	-0.17	0.37	-0.05	-0.25	0.68	0.54	0.53
ROW	-0.10	-0.43	-0.66	-0.27	-0.50	-0.45	-0.16	-0.25	-0.43

Source: Dimaranan et al. (2003)

Table 2.4 gives an indication of developing countries trading relationship with the developed world. It shows developing countries exports to, and imports from, OECD countries as a share of each countries total. The OECD is big exporter of commodities to countries like China, India and the rest of South Asia (RsoAsia) and the Middle East and North Africa (MENA). These countries are likely to be affected by liberalisation which alters the price of OECD exports. Indonesia, Sub Saharan Africa and China also rely on the OECD countries as export markets for most of their products.

For countries like these which are heavily integrated into OECD markets, liberalisation brings risks and rewards. Producers gain from greater market access, while consumers may lose through higher prices. These effects are discussed in more detail in the next section. However, table 2.3 gives us some indication of their relative importance across countries: many developing countries are net importers of most commodities.

Table 2.4. Share of Developing Country Trade with OECD, 1997

This table reports the percentage of several developing countries' exports and imports which are traded with the OECD. The program are composed of paddy rice, wheat, cereal grains, oilseeds, raw sugar, processed rice, and refined sugar. Livestock and meat includes livestock, wool, animal products, meat, and dairy. Other includes vegetables and fruits, plant-based fibers, other crops, vegetable oils and fats, other processed food.

	Program Commodities		Livestock and Meat		Other Agr and Food	
	Exports	Imports	Exports	Imports	Exports	Imports
China	52	76	60	85	55	44
Indonesia	78	58	69	95	27	44
Vietnam	13	56	74	82	24	40
ASEAN4	40	48	54	71	47	44
India	27	75	52	85	31	24
RsoAsia	23	66	61	81	62	18
Argentina	23	58	38	35	57	36
Brazil	48	21	71	33	50	36
RlatAm	47	63	77	69	47	51
FSU	37	23	50	80	48	63
MENA	43	66	73	80	66	60
Tanzania	89	31	54	60	54	25
Zambia	86	7	69	93	65	43
R_SSA	63	49	77	82	69	62
ROW	62	73	59	66	62	61

Source: Source: Dimaranan et al. (2003) table 4.

These results, however, have to be taken with some caution. They reflect the pattern of trade flows that result *given the highly distorted trade regime*. Many developing countries simply cannot compete against the huge subsidies, say, to dairy; if these subsidies were not there, they would become exporters rather than importers.

2.3 Effects of liberalisation

The (national) real income effects of liberalisation are dominated by two factors: (i) the change in allocative efficiency, and (ii) the change in terms of trade (TOT).

Gains from allocative efficiency are realised when market distortions are removed, permitting the economy to reallocate its resources to the most productive use. These benefits accrue largely to the liberalising region itself. They are partially reflected in the huge budgetary savings that accrue to the government of the liberalizing country.

The terms of trade effect comes from changes in a country's export prices relative to its import prices. The impact of global liberalisation on national terms of trade is usefully decomposed by McDougall (1993) into three separate effects – the world price effect, the export price effect and the import price effect.

Export and import restrictions mean that there is a wedge between the international price and the price that may be received by producers or paid by consumers in each country. A country with an export subsidy faces a higher producer and consumer price than the world price. A country with a production subsidy faces a higher producer price (inclusive of the subsidy) but the consumer price is the world price. A country with an import quota or tariff faces both a higher consumer and producer price. Full liberalization entails eliminating all of these restrictions. Since there are huge subsidies to the production of temperate agriculture products, the world price of these crops would go up. The consumer price would go up less in the EU, which has an export subsidy, than in the United States. Developing countries that protect agriculture would see consumer and producer prices go down relative to the world price, but since the world price has gone up, the net effect is ambiguous.

Making matters more complicated are cross commodity movements. Not all agricultural crops are equally subsidized. The elimination of subsidies would lead to a reallocation of resources within the agricultural sector. It is possible, for instance, that with the elimination of the dairy subsidy, the output of beef cattle could rise, and thus that the price of beef might fall, even though the price of milk products might rise. In general, vegetables are less subsidized than grains, and hence there would be a shift away from grains towards vegetables. Shipping costs are, however, less for grains than for vegetables, and vegetable markets tend to be localized. Thus, even if vegetable prices in developed countries fall, it will have little impact on developed countries.

For a few crops, like sugar, there are quotas. The elimination of the quota would lower producer and consumer prices in the developed countries imposing quotas, and raise producer and consumer prices. The overall impact on developing countries depends on who receives the quota rents. Even when it goes to those in developing countries, it does not seep down to producers.

Differences between production and export subsidies are often exaggerated. A production subsidy of t_p percent in an economy producing x_p raises output by approximately $t_p \eta_s$, where η_s is the elasticity of supply. The output impact per dollar of subsidy is $t_p \eta_s / t_p p x = \eta_s / p x$, and the impact on exports is $\eta_s / p x \alpha$, where α is the ratio of exports to total production. On the other hand, an export subsidy raises both the production price and the consumption price, so that output is increased and consumption reduced. The impact on exports is thus $\eta_s / p x \alpha + (1/\alpha - 1) \eta_d / p c$, where c is consumption. While the impact on developing countries per dollar of subsidy is greater, the difference is small, if the elasticity of demand is small, which is the case for many agricultural commodities.

It is important to recognize that among the "consumers" of agriculture goods is agro-business. While the higher price discourages direct consumption, it also discourages agro-business, shifting it to other countries, including developing countries. Thus, while there remains a presumption that export subsidies are worse than production subsidies, there is some question not only about the magnitude, but even about the sign.

2.4 Other impacts of reform on developing countries

There are several concerns about the effects of agricultural liberalisation on developing countries. The effects of Uruguay round liberalisation were expressed at the Marrakech Meeting, where the Ministerial Decision on “Measures Concerning the Possible Negative effects of the Reform Program on Least Developed and Net Food-Importing Developing Countries” addressed the need to provide adversely affected countries with assistance.

(i) Poverty and income distribution

The effect of liberalisation on poverty is difficult to determine, largely for the same reasons that we noted that there was an ambiguity in the impact on developing countries as a whole: consumers lose while producers gain. One problem is that the limited resources of small farmers could prevent them from taking advantage of liberalised markets. .

One of the most significant effects of liberalisation on the poor is felt through changes in the price of food. Anderson et al. (2000) model a general equilibrium framework and find that full liberalisation of OECD farm policies would have a large effect on the volume of international food trade (a 50 per cent increase) but only a small effect on prices (a 5 per cent increase on average). Beghin et al. (2003) find that the price rise is larger for some commodities. However it does not include the effects of reform to non-farm trade and so may misstate the effect in a multisector agreement. But even in this study, the expected price increases are not large – the smallest increases (about 4-6 per cent) are in the wheat, rice, and coarse grains sectors. The effect price increases on poverty is hard to generalise across developing countries and within countries. This is because the relationship between liberalisation and poverty depends on the shares of household income from different factors (land, labor, capital) – the prices of which will change. The size of these changes depends on factor substitutability, factor intensities and factor mobility. The impact of price changes on welfare depends on the relative shares of different goods in the production bundle. Additionally liberalisation could have effects on net transfers including increased welfare, remittances from distant relatives or changed taxation levels (Anderson 2003).

Despite these difficulties, Anderson (2003) argues *that since most of the poorest people are net sellers of food (or at least sellers of agricultural labor) liberalisation would reduce poverty*. Increases in the price of food would stimulate production and increase the demand for unskilled farm labor. Because unemployment (both open and disguised) is chronic in developing countries, this in itself would have enormous benefits. Assuming that incomes rise enough to compensate for the increase in food prices, this effect is a positive impact on one of the world's most disadvantaged groups.

(ii) Food self-sufficiency

Some fear that cuts to protection by OECD countries will lead to unaffordably high international food import bills (Sharma, Konondreas, and Greenfield, 1996).

Table 2.5 shows the proportion of the population that is undernourished in several developing countries (Anderson 2003). The last two columns show the value of food imports as a percentage of total exports and total agricultural exports. Interestingly however, net food importer status (greater than 100 per cent in the last column) is not highly correlated with the FAO's category 'Low income food deficit country' (LIFDC). Botswana, Jamaica and Peru are all net importers but are not classified as food deficient. Also the Cote d'Ivoire, Malawi and Kenya all import less than 20 per cent of their export volume, but are classified as food deficient.

An additional concern is that the liberalisation of agricultural trade would prevent countries from managing external price shocks. However, Zwart and Blandford (1989) argue that liberalisation could lead to less volatile food prices since trade can even out surpluses and deficits across countries with heterogeneous production shocks.

But governments may want to intervene to stabilize either producer or consumer prices, especially in developing countries where means for risk absorption are limited. Thus, initiatives at agriculture liberalization should leave scope for developing countries to implement such stabilization schemes.

Table 2.5: Income category and food trade status

LI, LMI and UMI refer to the World Bank classifications of low-income, lower middle-income and upper middle-income countries; LDCs are least-developed countries, as recognized by the UN; LIFDCs are low-income food-deficit countries, defined by FAO as those countries with a GNP per capita less than \$1,445 in 2000 and which are net importers of food defined on a calorie basis; NFIDCs are net food importing developing countries, as defined by the WTO Committee on Agriculture.

	Under-nourished	Income/food trade status groupings			Food Imports	
	(% of pop)				(% of total exports)	(% of agric exports)
Bangladesh	35	LDC		LIFDC	21	829
Botswana	25	UMI	NFIDC		14	256
Brazil	10	UMI			7	30
Costa Rica	5	UMI			6	19
Côte d'Ivoire	15	LI	NFIDC	LIFDC	9	17
Egypt	4	LMI	NFIDC	LIFDC	20	542
Fiji	Na	LMI			9	52
Guyana	Na	LMI			7	23
Honduras	21	LMI	NFIDC	LIFDC	13	48
India	24	LI		LIFDC	5	42
Indonesia	6	LI		LIFDC	6	56
Jamaica	9	LMI	NFIDC		12	111
Kenya	44	LI	NFIDC	LIFDC	13	32
Malawi	33	LDC		LIFDC	13	16
Morocco	7	LMI	NFIDC	LIFDC	12	146
Pakistan	19	LI	NFIDC	LIFDC	15	134
Peru	11	LMI	NFIDC		14	152
Philippines	23	LMI		LIFDC	6	123
Senegal	25	LDC		LIFDC	26	357
Sri Lanka	23	LMI	NFIDC	LIFDC	12	68
Thailand	18	LMI			2	14
Uganda	21	LDC		LIFDC	20	41
Zimbabwe	38	LI			5	13

Source: Anderson (2003), table 4, page 41

(iii) Preferential agreements

A final concern is that many of the least developed countries already receive preferential access to OECD country markets. Some of the beneficiaries of these agreements are concerned that their advantages might be eroded under a broader multilateral agreement.

However there are several reasons why multilateralism should be preferred. First preferential agreements harm those countries that are not in the agreement, including many who are very poor. Borrell (1999) discusses this point in the context of the banana

dispute of the 1990s in which one study showed that for every dollar of benefit to producers of bananas in ACP countries, the regime harmed non-ACP developing country producers by a similar amount and reduced the welfare of EU consumers by 13 dollars. This type of scheme does not seem to be a very efficient means of assisting banana producers in ACP countries, who could be directly compensated by gains from removing the preference.

Second, if developing countries only sell part of their production in preferential markets, then they are selling the rest of their output at lower than normal prices because of the depressing effect of OECD protection on prices in the rest of the international market.

2.5 Empirical review

The empirical results below come largely from CGE (computable general equilibrium models).

(i) Total benefits

Hertel et al. (2000) reports simulation results from a reduction from a 40 per cent liberalisation of all types of protection. The real income impacts of these changes are dominated by efficiency and terms of trade effects.

There are significant gains from increases in allocative efficiency. The first column in table 2.6 reports the efficiency gains as a share of food and agricultural value added. Large gains accrue to countries with the most distorted policies, such as Europe, US and Japan. In Western Europe the efficiency gains from liberalisation amount to more than 8 per cent of the entire sector's value added.

Hertel et al. (2000) add these efficiency gains to the terms of trade effects to calculate a measure of welfare gains, the 'equivalent variation' (EV) – which represents the amount of money that would make consumers equally well off had there been no liberalisation. The second column in table 2.6 shows the ratio of efficiency gains to total gain (EV). Where this is greater (less) than 100 per cent the terms of trade effects are negative (positive). For example, India experiences a terms of trade loss. Sub Saharan Africa, Brazil and Latin America experience a terms of trade gain because they are net exporters of food.

The total global welfare increase from a 40 per cent liberalisation of agricultural protection is \$70 bn in this study. The distribution of

these gains across countries is regressive. By far the largest absolute gains (column 4, table 2.6) accrue to developed countries. Western Europe and Japan who benefit from the reduction in their own subsidies. However, column 3 shows a measure of relative welfare which accounts for the importance of food in GDP in each region. Although the benefits of liberalisation to Western Europe are large, the food sector only represents 5 per cent of GDP. The third column in table 2.6 shows the total gain (EV) as a proportion of expenditure on food in that region. This is one way of representing the benefits of liberalisation relative to the importance of agriculture in the economy. On this category, the largest gains are realised in Other South Asia (non-India), Rest of the World (ROW), and Other Southeast Asia (non-Indonesia), the Other NICs and then Western Europe (Hertel et al. 2000).

For comparison, Table 2.7 shows the results of a second CGE study by Anderson et al. (2000). They estimate that the total welfare gain from the liberalisation of all (i.e. 100 per cent) of agricultural protection is \$164 bn. If the welfare gains are linear in the extent of liberalisation, then this study is consistent with Hertel et al. (2000) whose predicted \$70bn gain was based on a 40 per cent reduction of barriers.

The Anderson study reports the impact of liberalisation by different regions on other regions. It concludes that the farm policies of the OECD countries – after the Uruguay reforms have been accounted for – reduce welfare in developing countries by \$11.6 bn. This is a small number in comparison to the gains realised by developing countries as a result of liberalisation in other developing countries (\$31.4 bn), and the gains realised by developed countries as a result of their own liberalisation (\$110.5 bn). It is also a small number in comparison to the gains predicted from liberalisation in the temporary movement of natural persons. The reason many developing countries do not gain more is not difficult to understand given the structure of these models. Their gains from more efficient resource allocation are offset by an adverse change in the region's terms of trade.

Moreover, these models simply add up the gains and losses; no note is made of the fact that rural producers may be far poorer than the average person in society; or that those who buy *imported* food (say wheat) are far richer than those who live off locally grown crops, like millet. Nor does it take into account any multiplier effects, e.g. the losses in income to producers may have a larger effect on GDP than corresponding gains in income to consumers (e.g. because of differences in marginal propensities to consume.) With unemployment rampant in most developing countries,

aggregate demand is often a constraining variable. Nor do these models take into account the impacts of credit constraints: higher prices allow poor rural farmers to buy more fertilizer and higher quality seed, thus providing a further boost to their income. The higher incomes, in turn, may allow other forms of high return investment—including temporary migration into higher paying urban areas. Finally, there is considerable evidence that at very low incomes, productivity depends on nutrition, and the higher incomes accordingly will have a direct impact on agricultural productivity, another effect not incorporated into these models.

(ii) Effect of different instruments

For further comparison, we look at studies which focus on the effects of specific protection mechanisms.

Dimaranan et al. (2003) examine the effect of domestic support (not including market access restrictions) in industrialised countries on developing countries. The terms of trade effect dominates welfare outcomes in their simulations, leading them to conclude that a cut in OECD production subsidies would lead to welfare losses in most developing regions. The first column in table 2.9 reports the average world price impacts of cutting domestic support in all industrialised countries for all agricultural commodities by 50 per cent. The table shows that domestic support has the largest effect on price for program crops (wheat, corn, barley, rice) and ruminant livestock (beef). Sugar and dairy, which are mainly protected by tariffs, show small price declines and land and labor shifts out of program crops. The remaining columns in table 2.9 decompose the world price effects by type of domestic instrument: output subsidies, intermediate input subsidies, land based payments, and capital subsidies (including livestock based payments).

Dimaranan et al. (2003) also report the impact of domestic support reduction on developing country welfare. Welfare contributions from allocative efficiency, output stimulus, and terms of trade (table 2.10). The two largest agricultural exporters, Argentina and Brazil, gain considerably in each of these categories. For these countries the terms of trade effects are large and positive. However for most developing countries the terms of trade effects are negative and exceed the allocative efficiency gains. A 50 per cent reduction in OECD domestic support results in a decline in aggregate developing country welfare of \$357.3 bn.

Turning our attention to another experiment in partial liberalisation, Hertel et al. (2000) analyse the effect of reductions in

border protection (leaving production subsidies unchanged). They report that the gains from this partial liberalisation are smaller than when liberalisation also includes production subsidies: \$59 bn rather than \$70bn (table 2.7). However, the additional benefit from including production subsidies accrues entirely to developed countries which reap allocative efficiency gains. Western Europe alone gains an additional \$9bn when production subsidies are included. By contrast, many developing countries are worse off when production subsidies are liberalised because of the terms of trade effect. The Middle East and North Africa and Sub Saharan African countries outside the customs union are significantly worse off as a result of the reduction in production subsidies (table 2.10).

2.6 Conclusion - Analysis of empirical results

The quantitative studies above indicate that the effect of agricultural liberalisation on developing countries is complex. Competing efficiency and price effects have different effects across heterogeneous countries.

For the reasons explained earlier, these results should not be taken too seriously. The underlying assumptions of the computable general models do not provide a good description of the economies of developing countries. The results are highly sensitive to assumptions about elasticities and cross elasticities of supply and demand.

Still, there are three lessons that emerge from these admitted highly restrictive studies. The first is that in the process of liberalization, many developing countries will find themselves worse off, and this will be especially so for urban workers. But these adverse effects can be mitigated by adjustment assistance from the more developed countries *which at the same time leaves the more advanced industrial countries better off*. This is because of the large allocative inefficiencies associated with the distorted patterns of production.

The second is that a true development round has to go well *beyond* agriculture. It must include agriculture: it is too important to some of the developing countries; there can be no principled trade agreement without including agriculture; and, not surprisingly, it has taken on as a consequence enormous symbolic value.

Thirdly the potential for losses does not suggest that multilateral reform should be abandoned. Instead it suggests that to share benefits among all countries, reform must accommodate

differences across countries. The case for liberalization is particularly strong for those commodities, like cotton, the elimination of the subsidies for which would have little direct bearing on the standard of living of those in developing countries.

The empirical results surveyed above indicate that uniform elimination of all agricultural protection would result in negative terms of trade shocks for developing countries and sharp declines in farm incomes in Europe and North America. The latter are in a position to bear the costs; the former may not be a reform agenda must carefully discriminate between liberalisation instruments. Such an agenda would have three key components.

First, a significant reduction in border protection in developed countries (particularly the EU), including tariff cuts and the elimination of export subsidies. Tariffs on the goods produced primarily by developing countries as well as those consumed primarily in developed countries should be reduced most rapidly. For example the elimination of US and EU quotas and tariffs on sugar and tropical products would increase the price received by developing world producers but only have a small effect on consumer prices in developing countries.

Second, domestic production support for price-sensitive necessities that are widely consumed in developing countries should be reduced gradually, with some of the savings in developed country subsidy budgets being directed at ameliorating the adjustment costs of those in the developing world. Many developing countries in North Africa, Sub Saharan Africa and Latin America (not Brazil, Argentina or Mexico) rely on imports of subsidised grains and oilseeds from OECD producers. The empirical evidence reviewed above suggests that these countries are particularly exposed to agricultural reforms which might increase the price of some commodities.

Third, domestic support should be shifted from market price support to alternative payment systems. Reinstrumentation of protection in OECD countries towards the least trade-distorting instruments (such as land based payments) is one possible means of compensating OECD farmers while minimising the impact on developing world consumers. But for reasons stated in the main body of this report, many of the so-called non-trade distorting subsidies do in fact lead to increased production.

This type of program is similar to the thrust of the OECD in its "Positive Reform Agenda" for agriculture (OECD 2002) and supported by a series of recent research contributions. Rae and

Strutt (2002) compare the welfare gains of liberalisation in border measures and domestic support in a CGE framework. They find that improved market access generates far greater trade and welfare gains than reductions in domestic support.¹

A more complete agenda is described in Section V of the main report.

¹ They conclude that the WTO should focus primarily on achieving reductions in border restrictions and deprioritise the elimination of domestic support. Hoekman, Ng and Olarreaga (2002) focus on the effect of OECD agricultural reform on developing countries. They reach the same conclusion that developing countries interests are better suited through tariff cuts rather than domestic support. It is still the case, however, that the elimination of domestic for certain commodities (like cotton) is likely to have a small effect on consumers in developing country, and a large benefit to producers. There are other crops for which this is also likely to be true.

Table 2.6. Change in World Trade Volume

This table shows the change in world trade resulting from a 40 per cent reduction in protection across 3 sectors: Agriculture, manufactured goods, services. AgrMkt40 excludes reductions in production subsidies whereas Agr40 covers all forms of protection. Figures are percentage changes.

	AgrMkt40	Agr40	Manufac40	Services40
foodgrains	1.9	-7.2	1.2	0.5
feedgrains	4.1	1	0.7	0.5
oilseeds	0.6	5.8	0.1	0.3
meatlstk	5.6	4.9	1.1	0.3
dairy	-6.7	-6.9	0.1	0.7
othagr	8.3	8.1	0.5	0.4
othfood	12.1	11.8	0.5	-0.1
bevtobac	27.5	27.6	0	0.8
extract	0	-0.1	1.8	0.3
textiles	0.2	0.2	16.3	0.3
wearapp	0.7	0.4	22.3	0.6
woodpaper	0	0	3.6	0.4
pchemineral	0	-0.1	4.6	0.6
metals	0	0	5.5	0.4
autos	0.3	0.5	9.4	0.9
electronics	0.1	0.1	4.1	-0.1
othmnfcs	0.1	0.2	5.2	0.2
houseutils	0	0	0.1	1
tradetrans	0.5	0.5	1.5	59.8
construction	0.3	0.5	0.4	18.3
busfinance	0.1	0.1	0.5	10.8
govservice	-0.1	-0.1	0.8	39.2

Source: Hertel et al. (2000) Table 6, page 26.

Table 2.7 Welfare and Efficiency Gains due to 40% Liberalization in Agriculture: 2005
 The first column reports the efficiency changes as a share of food and agricultural value added. AgrMkt40 excludes reductions in production subsidies whereas Agr40 covers all forms of protection.

Region	Agr40 experiment ratios (percentages)			Total EV by experiment (\$mill.)				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Eff/\$VA	Eff/EV	EV/Exp	Agr40	AgrMkt40	Manufact 40	BusFinSv ces	T&Tsvces
NAmerica	9	11	0.035	3401	1436	3310	4517	52532
WEurope	6	104	0.369	36959	27810	8180	8532	128593
AusNZL	6	-12	0.377	1786	1348	207	209	8421
Japan	6	120	0.253	12552	13461	6607	2564	33358
China	6	1067	0.012	172	753	22593	826	8710
Taiwan	4	143	0.060	265	295	3288	83	6072
OthNICs	3	115	0.333	2672	2996	5270	612	23228
Indonesia	2	1183	0.002	6	26	792	270	1474
OthSEA	2	101	0.465	1931	1247	2631	393	11092
India	1	137	0.200	1058	927	3084	19	3989
OthSoAsia	1	118	0.852	1176	1181	1645	9	2213
Brazil	1	64	0.245	1988	1683	4491	457	3625
OthLatAm	1	48	0.360	3055	2366	1449	652	8611
Turkey	1	123	0.142	338	332	619	70	3524
OthMENA	0	-15	-0.202	-1506	-718	1074	231	16667
EIT	0	142	0.033	301	282	1391	1865	10265
SoAfrCU	0	46	0.080	129	54	283	128	1897
OthSSA	0	31	0.194	436	529	249	30	4496
ROW	-1	115	0.741	2601	2611	2399	137	3798
World				69320	58619	69564	21604	332565

Source: Hertel et al. (2000) Table 8, page 27

Table 2.8: Welfare Gains (Anderson et al. 2001)
 Sectoral and regional contributions to the economic welfare gains from completely removing trade barriers globally, post-Uruguay Round, 2005

Liberalizing Region:	Benefiting Region	Agriculture and Food	Other Primary	Textiles & Clothing	Other Manufacturers	Total
High Income	High Income	110.5	-0.0	-5.7	-8.1	96.6
	Low Income	11.6	0.1	9.0	22.3	43.1
	Total	122.1	0.0	3.3	14.2	139.7
Low Income	High Income	11.2	0.2	10.5	27.7	49.6
	Low Income	31.4	2.5	3.6	27.6	65.1
	Total	42.6	2.7	14.1	55.3	114.7
All countries	High Income	121.7	0.1	4.8	19.6	146.2
	Low Income	43.0	2.7	12.6	49.9	108.1
	Total	164.7	2.8	17.4	69.5	254.3

Source Anderson et al. (2001)

Table 2.9 Change in Average World Prices due to Comprehensive OECD Domestic Support

Commodity	World price change	Contribution by Tax/Subsidy to World Price Change			
		Output	Int.Input	Land	Capital
pdrice	0.26	0.12	0.34	0.05	-0.23
wheat	4.91	1.03	1.68	1.11	1.09
crsgrns	5.5	1.42	1.79	1.02	1.27
oilstds	3.53	0.92	1.21	0.79	0.6
rawsgr	-0.58	0.09	0.14	-0.33	-0.48
othcrops	-1.5	-0.01	-0.03	-0.69	-0.77
ruminants	4.3	0.48	0.95	-0.38	3.25
nonrumnts	0.54	0.26	0.45	-0.14	-0.02
rawmilk	0.21	0.14	0.81	-0.33	-0.4
pdrice	0.27	0.13	0.12	0.06	-0.03
vegoilfat	0.97	0.2	0.34	0.24	0.2
refsgr	-0.06	0.05	0.06	-0.03	-0.15
rummeat	2.21	0.31	0.56	-0.11	1.44
nummeat	0.43	0.17	0.28	-0.06	0.04
dairy	-0.19	0.14	0.36	-0.27	-0.43
othprfood	0.22	0.06	0.11	0.07	-0.03
mnfc	0.12	0.01	0	0.1	0.01
srvc	0.11	0.01	0	0.1	-0.01

Source: Dimaranan et al. (2003) Table 10, page 30.

Table 2.10. Developing Region Welfare Changes: Domestic Support Reform in \$ millions

Region	Equivalent Variation			Terms of Trade Components Region				
	Total	Alloc Efficiency	ISEffect	T.O.T.	WorldPrice	ExportPrice	ImportPrice	
China	-69.1	-69.6	-18.0	18.5	-51.8	137.1	-66.8	
Indonesia	-13.6	0.8	-1.9	-12.4	-54.5	35.5	6.6	
Vietnam	-8.2	-1.9	0.3	-6.6	-10.0	5.8	-2.4	
ASEAN4	-15.2	4.9	-4.3	-15.9	-47.4	113.4	-81.9	
India	35.9	15.2	-2.1	22.8	-22.9	38.6	7.1	
RsoAsia	-44.2	-3.3	-1.2	-39.7	-57.2	17.2	0.3	
Argentina	157.3	26.2	10.6	120.5	183.1	-53.1	-9.5	
Brazil	200.2	73.3	31.9	94.9	1.1	88.5	5.3	
RlatAmer	-214.3	-29.9	-1.0	-183.4	-244.7	101.8	-40.5	
MENA	-270.1	-50.6	-1.8	-217.7	-315.9	83.1	15.1	
Tanzania	-7.0	-1.2	-1.0	-4.9	-7.1	1.8	0.4	
Zambia	0.0	0.2	0.0	-0.3	-1.4	0.4	0.7	
R_SSA	-126.1	-16.0	-2.1	-108.0	-149.7	31.1	10.6	
ROW	17.1	27.7	-1.1	-9.4	-221.4	285.9	-73.9	
LDCTotal	-357.3	-24.2	8.4	-341.6	-999.7	887.0	-228.9	

Source: Dimaranan et al. (2003) Table 11, page 31.

3 Services

3.1 Introduction

This section analyses the potential gains from the liberalisation of services.

Services represent an increasingly large share of GDP in both developed and developing countries—but a much larger share in developed countries. Indeed, the area of focus of trade negotiations during the past fifty years, manufacturing, is increasingly becoming the province of developing countries. It is natural, then, that the developed countries like the United States would shift their focus towards liberalization of services.

The bulk of the empirical studies surveyed below suggest that the liberalisation of services could yield significant welfare gains – much larger than the gains from agricultural or manufactured goods. The estimates of global gains are as high as \$400bn. The estimates are large because protection levels are high in the service sector, and services make up a large (and growing) share of world trade. Additionally services are key inputs into the production of almost all goods.

The enthusiasm in the cross-country empirical literature is tempered by negative experiences at the national level. Opening up markets has been accompanied at times by a reduction in competition, and an increase in prices²; in the case of financial services, there are even allegations that the supply of credit to medium and small domestic enterprises has been reduced. Financial and capital market liberalization has been associated with greater instability, not higher levels of economic growth. These adverse consequences help, in turn, to explain the unhappiness that

² For example, privatisation of utilities – such as South Africa's experience of granting its newly privatised telecommunications utility Telkom a 5-year monopoly – can lead to inefficient services (OECD 2002). Similarly the poor regulation of financial sectors across South East Asia contributed to instability prior to the crises of the late 1990s. Poor electricity deregulation has led to problems in many countries.

many countries have about efforts to force further opening up of the service sector.

It is easy to explain the discrepancy between the “models” and the outcomes. It is partly that, as deficient as the models used to analyze the consequences of agricultural liberalization are, those in the area of services are far worse. They model trade in services in exactly the same manner that they model trade in goods, and thus the models have *all* the problems we noted earlier. But in addition, there are several further problems. There are some formal barriers to trade: the United States does not allow coastal shipping by ships of another nationality. There are restrictions on media ownership. Foreigners may not buy spectrum, and if they cannot buy spectrum, they cannot provide broadcasting services except by selling services to Americans who own stations. But many of the barriers to trade are subtler, and are typically hard to quantify. Because the estimates of the government created trade barriers are unreliable, so are the resulting estimates of the benefits that would accrue from eliminating them. Worse still, debates about liberalization in services do not center around discussions of lowering the effective barrier from say 40% to 20%; rather, they center around particular *measures*, such as privatization, elimination of particular regulations, etc. In each of these cases, the ramifications of the particular measure extend well beyond the impacts on trade; in many cases, these are incidental. Inevitably, then, debates about service sector liberalization devolve into fundamental debates about national economic and social policy. Should the media, for instance, be controlled by a few rich, foreign firms, who are able to use their wealth to control the flow of information to the citizenry? This is an issue which is fundamental to the functioning of democracy, and should not be relegated to trade negotiators to settle. (At the same time, we should recognize that there are certain service sector liberalizations which are little different in their impact than a standard trade liberalization; such is the case for construction and maritime services—areas which were not included in the Uruguay negotiations, and which are of some concern to developing countries.)

Part of the reason that the standard models are unpersuasive arises from the fact that they fail to take account of the highly differentiated nature of services, and the large “local information” content. There are other ways in which trade in services are *obviously* different from trade in goods. For the most part, services have to be *consumed* at the point of production. In the case of haircuts, the point is obvious. But the same is true for retail sales, hotels, and electricity. Thus, the issue of the trade in services in

inextricably linked (as already noted) to the movement of capital and labor. Without these, there can be little trade in services.

But movements of labor and capital introduce a host of other considerations, quite different from those associated with trade in goods. The issues of labor—which are of vital concern to developing countries—are dealt with in the next section. The central issue of concern for capital flows are investor protections. What the investors would like, of course, is a world without regulation or taxation, but that would compromise the general well being of the developing world. Indeed, most of the failures of liberalization have been because of a failure to put into place an adequate regulatory environment (including one which ensures competition.)

Economic theory, of course, says that, under certain idealized circumstances (e.g. constant returns to scale) full global efficiency can be gained either through the free mobility of capital or the free mobility of labor. But in the general case, equating the marginal returns to capital will not suffice to equate the marginal returns to labor.

What do international firms provide when they provide services? Why might an American company have a competitive advantage in financial services over a domestic company? Presumably, this relates to *knowledge* and *information*, e.g. about how to organize the provision of the services.

There are, in fact, a variety of ways by which such services are sold, besides direct investment. Hotels and restaurants issue franchises, which have been enormously popular. Firms may contract out management services.

Of increasing concern in recent years in the United States is the problem of “contracting out” services through the Internet. This is one area in which production of a service can occur at a place different from that where the service is consumed. Such services are, in many ways, very much like traded goods. It is of importance to developing countries that this nascent industry not be impaired, by the creation of new trade barriers by the developed countries.

Impact on poverty. A further concern is that many service sector liberalizations increase poverty, by increase prices of essential services or reduce access for the poor. Private firms may be less willing to engage in cross-subsidisation of market segments in poor and rural areas. Even if liberalisation leads to lower average costs through increased competitiveness and efficiency, prices for some end-users may rise. Mosely (1999) estimates that the impact of

financial liberalisation on access to rural credit in four African countries – Uganda, Kenya, Malawi and Lesotho. The study found that liberalisation expanded credit where it was accompanied by innovative reforms with regulation focussed on rural access and poverty reduction. However merely privatising government micro-credit agencies had a negative effect on rural areas, as witnessed by the consequences of reform in Malawi.

Impact on communities and cultural identity. There is also a concern that some service sector liberalizations, even if they increase economic welfare, narrowly defined, have an adverse effect on community life. Each individual in the community values having the local store; the local storeowner, like other local businessmen, provide essential services for the community. But these are services that are not “priced.” It pays each consumer to buy the goods for the lowest price. Wal-Mart is thus able to drive out of business the local store. But there are fundamental questions: is the community better off, with the local businessman replaced by a hired manager, that is rotated in and out of the community in three years time?

3.2 Patterns of trade and protection

Services sectors account for half of GDP in developing countries (60 per cent in developed countries) and are some of the fastest growing industries in many economies. The performance of the services sector is critical to growth. For example, the strength of a country's financial sector is a determinant of growth (Levine 1997, Carlin and Mayer 2003). Well-managed and well-regulated banks lead to an efficient transformation of savings to investment, ensuring an appropriate allocation of resources. Similarly, efficient business services reduce transactions costs and telecommunications capabilities are an important prerequisite for development in many sectors.

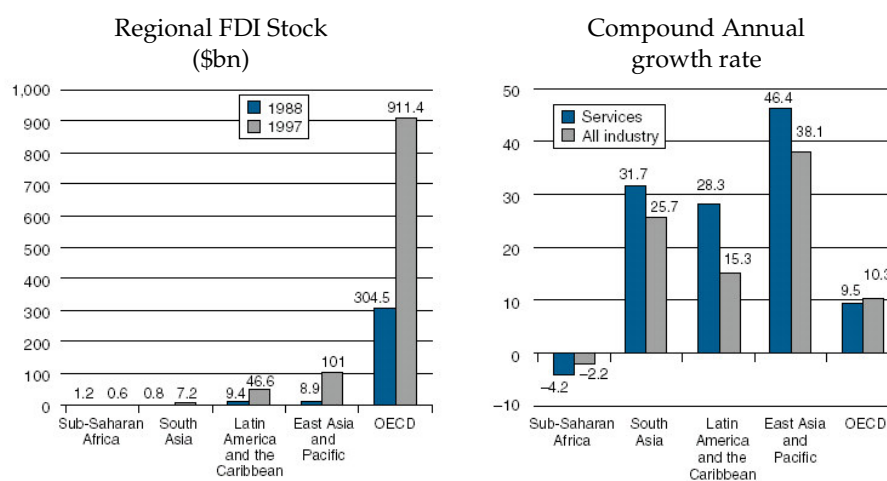
(i) Modes of supply

The GATS framework provides for 4 modes of service delivery

- Mode one: *cross-border supply*, which is analogous to trade in goods; arises when a service crosses a national frontier, for example, the purchase of software or insurance by a consumer from a supplier located abroad.

- Mode two: *consumption abroad*; occurs when the consumer travels to the territory of service supplier, for example, to purchase tourism, education, or health services.
- Mode three: *commercial presence*; involves foreign direct investment, for example, when a foreign bank or telecommunications firm establishes a branch or subsidiary in the territory of a country. Figure 3.1 indicates that the stock of service sector FDI in developing countries is small relative to OECD countries. However as the right-hand panel indicates, service sector FDI is growing more rapidly in developing countries, with the exception of Sub Saharan Africa.

Figure 3.1 FDI in services



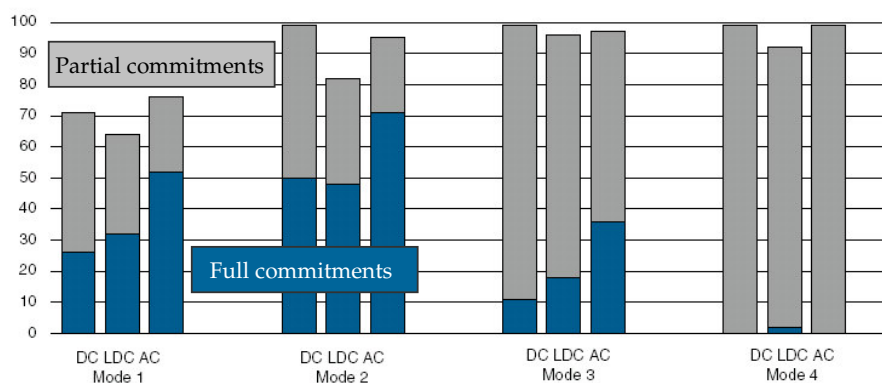
Source: OECD (2002)

- Mode four: *movement of individuals*; occurs when independent service providers or employees of a multinational firm temporarily move to another country. This mode will be discussed separately in another section.

These four elements of the General Agreement on Trade in Services (GATS) encompass the movement of both capital and labor for services provision. This broad approach enables countries to bargain to exploit their comparative advantage. For example developing countries might exchange greater market access for capital for more fluid movement of unskilled workers to developed countries. Figure 3.2 shows that the existing commitments have been lopsided, with the development of mode 4 proceeding most slowly.

Figure 3.2 Full and partial market access commitments under GATS

The upper part of each bar represents partial commitments, the lower part full commitments.
DC = Developed countries; LDC = Developing and transition economies; AC = Acceding countries



Source: OECD (2002)

(ii) Protection

International service transactions remain heavily protected in many countries. Table 3.1 estimates the tariff equivalent protection levels for the construction services, business and finance, trade and transport, and government services sectors across various countries and regions. These are taken from estimates by Francois (1999). The estimates are based on predictions of the level of bilateral services trade with the US. Discrepancies between the actual level of bilateral trade (from US trade data) and the predicted level are assumed to result from protection. The estimates for the trade and transport, and the government services sectors are taken from Hoekman (1995).

Table 3.1 indicates that impediments to trade are quite high in trade and transport, government services and construction and that barriers to trade in services are much larger than barriers to trade in manufactures and extraction industries. Findlay and McGuire (2003) report that impediments to international services tend to fall

Table 3.1 Average Rates of Protection

This table reports estimated levels of average protection by region and sector in 2005. In services these are tariff equivalent rates. For example in China, the figures below suggest that import prices in the construction industry must be 41 per cent above their free trade level to explain the relatively low share of imports in this market.

Region	Food	Manufactures	Services			
			Construction	Business & Financial	Trade & Transport	Government Services
N America	5	3	10	8	69	34
W Europe	8	1	18	9	84	40
Aus NZL	4	7	24	7	91	31
Japan	58	2	30	20	71	32
China	18	20	41	19	96	42
Taiwan	41	4	5	3	93	36
Other NICs	21	2	10	2	82	37
Indonesia	5	8	10	7	85	43
Other SEA	25	12	18	5	88	40
India	40	35	62	13	96	41
Oth SoAsia	37	20	46	20	92	41
Brazil	4	16	57	36	71	44
OthLatAm	9	10	26	5	79	43
Turkey	31	6	46	20	92	40
Oth MENA	15	14	10	4	92	40
EIT	12	9	52	18	71	35
SoAfrCU	8	8	42	16	58	26
OthSSA	13	9	11	0	94	43
ROW	76	33	46	20	97	38

Source: Hertel, Anderson, Francois and Martin (2000), table 4, page 25. Original sources: Francois (1999), Hoeckman (1995).

as income rises, except in some professional service activities. This is indicated in figure 3.3.

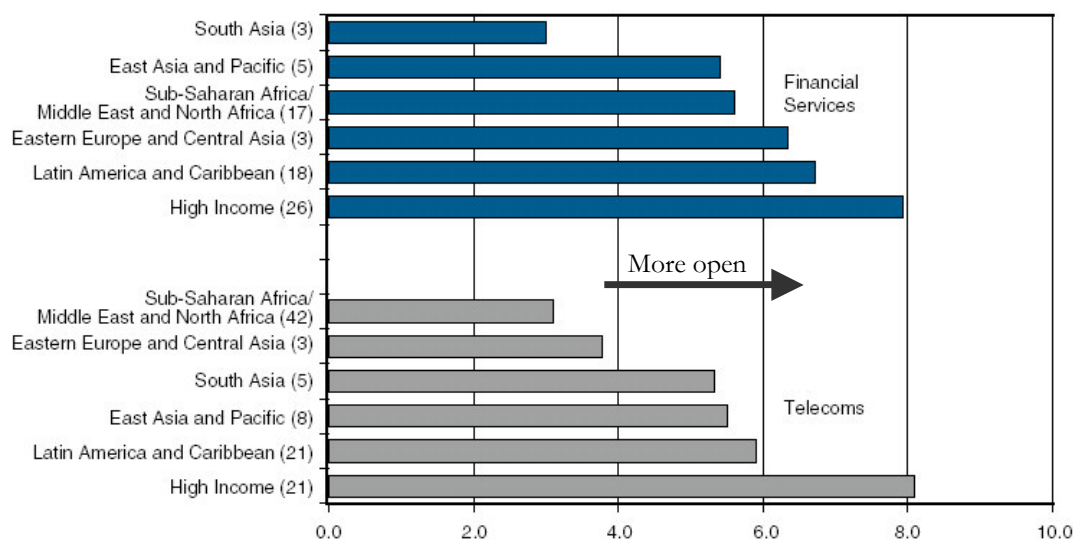
One has to be careful, however, about interpreting this data, which refers primarily to mode 1 impediments. There are some service sectors—like haircuts—that are typically small businesses. Without mode 4 liberalization, there is likely to be little cross border sales of these services, even though standard economic theory would suggest that there would be large gains to trade. Services are highly individualized, often requiring large amounts of localized information. Thus, even with no artificially created barriers, individuals in one country may prefer to deal with those from their own community; and those from their own community may be able to provide the services that individuals want. Local banks may have a competitive advantage in knowing who are good borrowers (an advantage which may be more than offset by the problem of correlated risk.) Large multinationals, geared to providing services to those in advanced industrial countries, may find it difficult to provide the services demanded in poor developing countries. In short, there are reasons to believe that even apart from artificially

created barriers to trade in services, such trade might be more limited than trade in manufactured goods. In that case, even though the service sector is today larger than the manufacturing sector in developed countries, potential gains may be more limited.

Moreover, one has to distinguish *protection* from the legitimate role of government in imposing *regulations* that promote a variety of concerns of general interests, *even when such regulations have the effect of discouraging foreign firms*. For instance, affirmative action requirements might have the effect of discouraging foreign firms, yet it is a legitimate objective of government policy to advance the economic well being of the disadvantaged.

Figure 3.3 Service sector openness by region:
financial services and telecommunications

The openness index for telecommunications captures the degree of competition, restrictions on ownership and the existence of an independent regulator (ITU-World Bank database for 1998). The index for financial services captures the restrictions on new entry, foreign ownership and capital mobility (IMF's Annual Report on Exchange Arrangements and Exchange Restrictions).



Source: Mattoo, Rathindran, and Subramanian (2001). OECD (2002)

3.3 Potential gains and costs of liberalisation for developing countries

Inefficient service industries operate like a tax on an economy. Since services are essential production inputs for most goods, the price and quality of services provided to other producers have major impacts on the whole economy. This is particularly true in key service industries such as telecommunications, transport, energy and finance.

For this reason the majority of gains from effectively managed reform accrue to the liberalizing region itself. Domestic firms benefit from access to services at lower prices; consumers gain; employees in most service industries earn higher wages than in manufacturing (OECD 2002).

This poses two questions: First, if the benefits of liberalization are so great to the country liberalizing, why does one need to include such liberalizations within a trade agreement? Won't countries have an incentive to do that on their own? The answer traditionally put forward is that it is part of the political economy of trade liberalization: one gives up something of value to the other side (refusing at the same time to do something that would be of even greater value to oneself) in order to extract a concession out of the other side. The problem with this argument, in the context of services, is that typically the advanced industrial country *as a whole* has relatively little to gain, though particular firms in the developed country may gain a large amount. Thus, in the area of services, one is pandering to special interests. Pandering to special interests is not only bad economic policy, it is dangerous; because after the foreign firm comes in, the company continues to put pressure on its government to put pressure on the foreign government to pass legislation or regulations that are to its benefits, to renegotiate concessions, when they prove unprofitable, not to abrogate a contract, even when there is clear evidence that the contract was only entered into because of corruption.

The reason that particular firms have much to gain, though not necessarily countries as a whole, is associated with the very reason that there are gains to trade in services: these arise not out of the standard differences associated with differences in factor supplies (after all, most of the production actually occurs in the purchasing country) but out of differential *information and knowledge*, including organizational capacity. If that information is widespread within a society, it is more likely that that information can easily flow abroad, especially so in our highly interconnected global economy.

Wal-Mart, Toys-R-Us, and AIG have certain strengths that may not (or, in some cases, may) be easily imitated. When hard bargaining by the U.S. allowed Toys-R-Us to open up in Japan, Japanese children benefited from the cheaper toys, as did Chinese workers, as China's sales of toys increased. But America benefited only to the extent that Toys-R-us profits increased. American jobs were essentially unaffected.

The second, related issue is why *should* these liberalizations be part of an international trade agreement. Such agreements should focus on areas where there is a *global public good* being provided, e.g. through the setting of standards.

3.4 Review of empirical results

(i) Methodology

For agricultural and manufacturing, most models report results dominated by two main effects – allocative efficiency gains and changes in terms of trade.

For services liberalisation, movements of capital across borders generate additional effects. Firstly, foreign direct investment inflows and outflows can lead to an expansion or contraction in the capital stock located within a region. Changes in capital endowments affect national income.

A second effect on income works through the rents earned on foreign direct investments. Rents are created by barriers to services trade which fall during liberalisation. In some models, rents on output are separated from rents on ownership. Rents on output are retained by incumbent firms and accrue to the selling region whereas rents on ownership are transferred away to the region of ownership. Liberalisation of services thus affects the distribution of the capital stock and affects the returns to that stock.

(ii) Modelling results

Unlike in agriculture, the modelling suggests that the main beneficiaries of reform in terms of both absolute and relative (% GDP) welfare gains are the developing countries.

Dee and Hanslow (2000) use a CGE model called FTAP, to report that the total global gain from liberalising all post-Uruguay trade

restrictions on services is \$130 bn.³ This amounts to half the total gain (\$260bn) from total post-Uruguay liberalisation – with the other half being made up of gains from agriculture (\$50bn) and manufactures (\$80bn). These are the projected gains in real income about 10 years after the liberalisation has occurred. They include the gains from increased trade and more efficient resource allocation.

In a similar exercise by Hertel (1999), world welfare gains were predicted to be smaller than those in Dee and Hanslow (2000). Hertel predicts that the gains from liberalisation in agriculture, manufactures, and services are 164bn, \$ 130bn and \$55bn respectively. This variation is largely accounted for by differences in modelling assumptions. In agriculture, Hertel assumes no effective Uruguay liberalisation post-1995, leaving much more to be done and more gains to be realised. In manufactures, the difference is largely accounted for by differences in the base year (Dee and Hanslow use 1995; Hertel uses 2005). Applying the 2005 base to the FTAP model makes up 90 per cent of the difference. In the service sector, Hertel models only liberalisation in the construction and business services sector. He also does not include liberalisation of FDI.

Brown, Deardorff and Stern (2002) use a CGE model to calculate the welfare effects of a 33 per cent reduction to barriers in the service sector. Table 3.2 shows that they expect global welfare to rise by \$413bn. All of the countries listed experience welfare gains as well as increases in real wages and returns to capital. Developed countries experience large welfare gains – \$142bn for the EU, \$131.4bn for the US, and \$57.9 for Japan. However developing countries also large, and in many cases larger relative shares of the benefits. Brown, Deardorff and Stern (2002) note that their results - which are dependent on the accuracy of the size of barriers they estimated indirectly from trade flow data – show that the liberalisation of services is likely to yield significantly larger gains than other reforms.

Hertel, Anderson, Francois and Martin (2000) also compare the gains from services liberalisation to agriculture and manufactures. They report that a 40 per cent cut in protection in the business services and construction sectors yield a \$22bn gain. Their estimates of the potential gains in the trade and transport sectors are \$332bn. The trade and transport sectors represent a large share

³ Welfare gains are reported in standard CGE 'real income' terms. Real income is a measure of national income deflated by an index of national prices.

of global trade in services and have significant flow on benefits to other sectors of the economy. Table 3.3 shows the wide distribution of these gains across developed and developing countries.

Verikos and Zhang (2001) analyse the sectoral impacts of liberalisation in financial and communication services. They estimate the gain from each sector is \$24bn. In both sectors, the majority of the gains come from removing restrictions that discriminate against foreign firms.

(iii) Distribution of gains across countries

These gains are not of course divided equally across all countries. In Dee and Hanslow's analysis, their \$133bn gain accrues disproportionately to developing countries. The service sectors in many developing countries are projected to expand as their relatively large barriers to entry are removed. For example, the service sector in China (which captures a large part of the welfare gains) is projected to increase by a third when its large barriers to entry are removed.

Dee and Hanslow report results for only a small number of commonwealth developing countries. The gain to Malaysia from global service sector liberalisation is \$1bn – equivalent to 0.7 per cent of GDP. The gains to the 'rest of the world' which includes smaller developing countries is \$23bn or 0.8 per cent of GDP. Australia, China, Mexico, Chile and Indonesia all gain more from tertiary liberalisation than from primary and secondary combined.

3.5 Conclusions

Service sector liberalisation has the potential to deliver large welfare gains to developed and developing countries.

Since a large part of the gains from reform in the services sector accrue to domestic policy reforms, it is not obvious why international negotiations are necessary to achieve desirable outcomes. If the main gains could be achieved unilaterally, then what is the utility of multilateral negotiations? Matoo (2002) observes that many developing countries are in a situation where their ability to implement reform is hindered by opposition from domestic lobbies. In this context, it may be useful for some countries to undertake reforms in the context of the momentum of broad international negotiations.

There are however other areas where co-ordinated reciprocity could yield significant gains in the context of multilateral negotiations. On one hand developing countries have a number of developed country market access interests, particularly in the area of access to labour markets (GATS Mode 4), but also in construction and back-office business services. This suggests the prospect for a deal based on access to labour markets in exchange for a developed country demand such as greater commercial presence by foreign service providers in developing countries (Matoo 2002).

Moreover there are several cases in which international cooperation may be valuable. One example is competition policy: a permissible merger in one jurisdiction may have a detrimental effect on competition in a smaller foreign jurisdiction. Fink, Matoo and Rathindran (2001) suggest that the GATS should require domestic competition law to consider the effect of collusive agreements on foreign markets. Second they suggest the foreign consumers should have the right to take actions in foreign courts against corporations that abuse their market power.

Table 3.2

This table shows the effects of a 33% reduction in barriers to service trade on imports, exports, terms of trade, welfare, real wages and the return to capital.

Country	Imports (Millions)	Exports (Millions)	Terms of trade (Percent)	Welfare (Percent)	Welfare (Millions)	Real Wage (Percent)	Return to Capital (Percent)
Australia&NewZealand	2354.4	1962.3	0.385	1.050	5379.6	0.694	0.657
Canada	2244.0	2136.3	0.083	0.811	5910.4	0.317	0.316
EuropeanUnionandEFTA	35478.1	35336.8	0.032	1.295	142003.2	0.553	0.546
Japan	14797.7	15501.6	-0.067	0.891	57875.1	0.247	0.277
United States	32467.7	32231.5	-0.033	1.448	131426.8	0.524	0.534
India	919.2	803.9	0.212	0.552	2321.6	0.170	0.204
SriLanka	121.7	99.1	0.335	1.202	200.4	0.881	0.507
RestofSouthAsia	374.3	286.7	0.286	0.689	804.9	0.293	0.453
China	5660.3	6210.9	-0.128	1.320	11959.1	0.840	0.603
HongKong	7587.2	8058.4	-0.611	4.382	5643.1	5.638	5.927
SouthKorea	4842.2	5002.5	-0.102	1.339	7619.5	0.913	0.956
Singapore	3325.1	3776.2	-0.297	3.322	2470.8	4.821	3.972
Indonesia	1401.3	1469.4	-0.072	1.256	3177.0	0.327	0.307
Malaysia	1487.6	1466.8	0.049	1.267	1514.5	1.026	0.928
Philippines	1986.7	2195.0	-0.462	2.342	2067.1	1.739	1.622
Thailand	3324.2	3625.3	-0.413	1.401	2886.4	1.088	0.904
Mexico	863.1	809.1	0.110	0.878	3099.3	0.204	0.195
Turkey	1733.3	1462.9	0.589	1.781	3745.9	0.695	0.884
CentralEurope	3841.7	3744.5	0.061	1.409	5227.2	1.067	0.996
Central&SouthAmerica	4199.9	4442.8	-0.179	1.050	18363.5	0.256	0.272
Total	129009.6	130621.8			413695.4		

Source: Brown, Deardorff, Stern (2002), table 4

Table 3.3 Welfare and Efficiency Gains

The first column reports the efficiency changes due to a 40% liberalization in agriculture as a share of food and agricultural value added. The second column reports the efficiency gain as a proportion of the total gain in terms of equivalent variation (EV)– where this is larger than 100, the terms of trade effect is negative. Column 3 reports the EV as a proportion of total expenditure. Columns 5-8 report the EV for 5 different sector liberalization experiments.

Region	Agr40 experiment ratios (percentages)			Total EV by experiment (\$mill.)				
	(1) Eff/\$VA	(2) Eff/EV	(3) EV/Exp	(4) Agr40	(5) AgrMkt40	(6) Manuf40	(7) BusFinSv ces	(8)
NAmerica	9	11	0.035	3401	1436	3310	4517	52532
WEurope	6	104	0.369	36959	27810	8180	8532	128593
AusNZL	6	-12	0.377	1786	1348	207	209	8421
Japan	6	120	0.253	12552	13461	6607	2564	33358
China	6	1067	0.012	172	753	22593	826	8710
Taiwan	4	143	0.060	265	295	3288	83	6072
OthNICs	3	115	0.333	2672	2996	5270	612	23228
Indonesia	2	1183	0.002	6	26	792	270	1474
OthSEA	2	101	0.465	1931	1247	2631	393	11092
India	1	137	0.200	1058	927	3084	19	3989
OthSoAsia	1	118	0.852	1176	1181	1645	9	2213
Brazil	1	64	0.245	1988	1683	4491	457	3625
OthLatAm	1	48	0.360	3055	2366	1449	652	8611
Turkey	1	123	0.142	338	332	619	70	3524
OthMENA	0	-15	-0.202	-1506	-718	1074	231	16667
EIT	0	142	0.033	301	282	1391	1865	10265
SoAfrCU	0	46	0.080	129	54	283	128	1897
OthSSA	0	31	0.194	436	529	249	30	4496
ROW	-1	115	0.741	2601	2611	2399	137	3798
World				69320	58619	69564	21604	332565

Source: Hertel et al. (2000) Table 8, page 27

4 Temporary migration

4.1 Introduction

The GATS recognises four modes of service delivery. The temporary movement of natural persons (TMNP) is known as Mode 4. It is by far the smallest in terms of trade flows and the volume of scheduled concessions recorded under the GATS (figure 3.2).

The limited commitments that have been made refer to high-skill personnel – business executives etc. – whose mobility is closely linked to foreign direct investment and is an issue of interests to business lobbies in developed countries. Thus far Mode 4 has not progressed in a way that allows developing countries to use their comparative advantage in low and medium skill labor-intensive services.

The empirical studies surveyed below suggest that an expanded Mode 4 could generate enormous welfare gains. The temporary movement of less skilled workers from developing countries (where they are in oversupply) to developed countries (where they are relatively undersupplied) is estimated to increase world welfare by hundreds of billions of dollars, even if the scale of the labor flow was modest.

4.2 Potential gains and costs from liberalisation

The movement of natural persons is usefully divided into three categories.

(i) Flows from Developed to Developing

This category represents highly skilled technical or managerial workers who work in developing countries either providing specialised services such as consulting and legal advice or fulfilling senior management roles in foreign-owned firms. This is a

widespread practise which aids the management of multinational firms and supplies useful skills to firms in developing countries.

(ii) Skilled flows from developing to developed

The emigration of skilled workers from developing countries is actively encouraged by developed countries and provides clear gains to them. Over 30 per cent of all doctors and nurses in the British health care system were born outside the UK. The same is true for more than 12 per cent of academic staff in British Universities.

From the perspective of developing countries, this flow is better known as the 'brain drain'. The loss of skilled local workers deprives the country of the various economic and non-economic spillovers. The brain drain reduces total output, diminishes the competence of domestic high skill sectors, and erodes the tax base. Desai et al. (2001) point out that the one million Indians living in the United States account for just 0.1 per cent of India's population but earned the equivalent of 10 per cent of India's national income.

On the other hand, the temporary emigration of skilled persons can benefit developing countries in several important ways. First, the possibility of temporary migration for skilled workers may increase the returns to education in the source country. Commander Kangasniemi and Winters (2002) argue that this leads to an increase in skilled workers in the domestic economy which partly offsets the direct effects of the brain drain.

Second, remittances from workers in developed countries back to their families are an additional benefit of migration (Massey et al. 1998). Remittances are an economically significant transfer for LDCs. In 2002, the Inter-American Development Bank reported \$32bn in remittances sent to the countries of Latin America and the Caribbean. This was far greater than total ODI and only slightly less than foreign direct investment (Ellerman 2003). Though impressive in size, it is worth being circumspect about the potential for remittances to generate sustained development. Martin and Straubhaar (2001) point out that income from remittances is potentially less valuable than income from newly established local enterprises, or export earnings.

Additionally there is evidence that national diasporas are an important source of growth. For example, the 50 million Chinese living abroad have been remarkably beneficial to the Chinese economy. They are a source of business experience, network connections, and capital.

(iii) Unskilled flows from developing to developed

The movement of unskilled workers to developed countries offers the greatest gain because it is associated with the largest difference between factor prices and the largest scope for movement, measured as number of willing people. It is also however the subject of the greatest concern in developed countries.

Developed countries experience benefits and costs from unskilled migration. Foreign workers are an important source of labor in developed countries. London's catering industry depends on migrants for 70 per cent of its labor force and a large proportion of seasonal agricultural workers are foreign (Home Office 2000).

Opposition to unskilled labor flows comes from the fear that foreigners displace local workers and contribute to unemployment. A study by the British Home Office (2000) examines the held perception that immigration is detrimental to native workers. It concludes that unskilled workers often fill jobs in low paid and insecure industries. In many cases these are jobs that native workers are unwilling to accept. In these jobs, foreign workers are filling labor market gaps rather than displacing native workers. Where migrants move in to industries with unfilled vacancies, their presence has little effect on either employment or wages of domestic workers.

Even in industries where migrants are displacing domestic workers, the effect is not much different than the impact of labor-intensive imports of foreign goods on domestic manufacturing.

4.3 Empirical review

In an early study, Hamilton and Whalley (1984) suggest that if labour were free to move between countries sufficiently to equalise wages around the world, the increase in world output would rise by more than 150 per cent.⁴

Even using the more conservative assumption that part of the cross-country difference in wages reflects productivity differences which persist irrespective of location – e.g. health and education – the gains are large. Winters, Walmsley, Wang, Grynberg assume that workers from poor countries are naturally only one third as

⁴ Assumes an elasticity of substitution between factors of 1.

productive as workers in developed countries. They estimate the gain from full labor mobility to be 70 per cent of world GDP.

Obviously full labor mobility is an extreme and impractical assumption. Winters (2000) estimates that even relatively modest increase in labor mobility would increase world welfare by \$300 bn. This study assumes that fifty million additional workers from developing countries be permitted to work in developed countries. Winters assumes that when workers move from a low to a high wage country, they make up one quarter of the wage gap, i.e. three quarters of observed wage gaps are due to persistent differences in productivity.

These rough estimates have been subsequently corroborated by Winters et al. (2002) using a general equilibrium model. They find that if developed countries allowed temporary workers from developing countries to increase their workforces by 3 per cent (8 million skilled and 8.4 million unskilled), world welfare would increase by over \$150 bn. Winters et al (2002) use the GTAP model and database developed by Hertel (1997). They assume that temporary workers make up half the productivity differences between their home country and their host country when they move.

The initial residents of developing countries (which are labor exporting) gain most from the increase in migration. Their share of the total gain is approximately 80bn, more than developed countries and a significantly larger fraction of their income. The largest part of this increase accrues to temporary migrants themselves. In several developing countries Winters et al. (2002) find that the remaining residents of developing countries generally experience a loss in welfare. Despite increases in remittances and an improvement in their terms of trade (as the fall in GDP reduces the supply of their goods), the decrease in labor supply leads to a fall in the return to other factors which outweighs these gains. However for many commonwealth countries including India, South Asia and South Africa, the welfare of permanent residents increases. For these underdeveloped countries, the increase in remittances outweighs the decline in labour and capital income. Remittance income increases the demand for domestic goods and allows the real wages of both skilled and unskilled workers to rise. The welfare of permanent residents in India and the rest of South Asia increases by \$16 billion and \$350 million respectively. In south Africa, the welfare of permanent residents increases by \$82 million, while the welfare of temporary migrants increases by \$4.4 billion.

4.4 Conclusion

The substantial benefits estimated to be available to developing countries from the liberalisation of temporary migration for the unskilled suggest that this is a promising area of reform. Obviously any proposal must be limited and sensitive to the political concerns of developed countries.

Winters et al. (2002) suggest that one possible way forward is to include existing foreign worker schemes under the GATS by scheduling them and subsequently extending them. Many countries already have short-term foreign worker schemes for low skilled jobs in agriculture, tourism and construction.

A second approach is to focus on subcontracting schemes in future Mode 4 negotiations. Restricting the movement of people to existing employees of incorporated firms avoids many of the problems of mobility for individual workers (but also limits the scope of benefits). The pre-employment guarantee ensures that the workers will arrive with a job and increases the likelihood of their return after completion of the project. Where firms are responsible for their staff, they can provide housing, health and insurance, etc. These services may reduce the costs of mobility for some workers.

However there are also many disadvantages associated with subcontracting. First, many service transactions are not appropriate for subcontracting. Limiting mobility to transactions that are suitable for provision by sub contractors obviously diminishes the potential gains from liberalisation of migration.

5 Manufacturing

5.1 Introduction

The Doha Ministerial Conference agreed to launch tariff-cutting negotiations on all non-agricultural products. The aim is to “reduce, or as appropriate eliminate tariffs, including the reduction or elimination of tariff peaks, high tariffs, and tariff escalation, as well as non-tariff barriers, in particular on products of export interest to developing countries.”

Significant progress on tariff reduction has been made in several sectors. The empirical evidence below suggests that this reform has been accompanied by an increase in the share of manufactured goods in world trade and in the share of manufactured goods in developing country exports.

However, several studies suggest that the potential gains from the Doha Round might be larger than those realised as a consequence of Uruguay Round reform. In particular, developing countries gain significantly more as a share of GDP from post-Uruguay reductions than they did in the Uruguay Round. This may be because the Uruguay Round was tilted against developing countries.

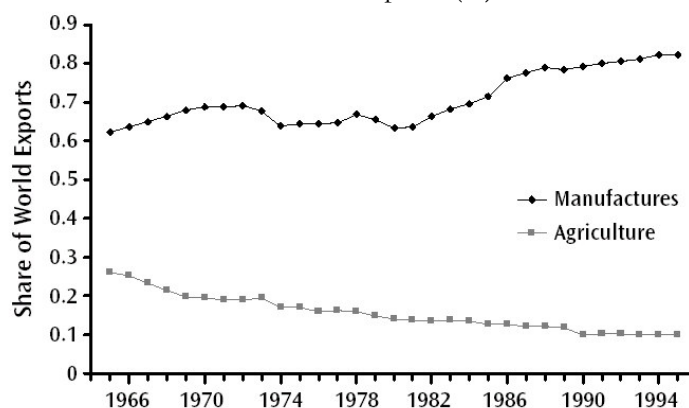
The reduction in tariffs peaks on goods of interest to developing countries and the reduction in protection on south-south trade are promising areas for reform.

5.2 Patterns of trade and protection

While the average rate of agricultural protection in OECD countries has risen in the last 3 decades, manufacturing protection levels have fallen. Average tariffs on industrial goods imported into the OECD countries fell from around 40 per cent in 1950 to 1.5 per cent in 1998 (Hertel 2000).

Figure 5.1 shows that there has been a corresponding shift in the composition of global export towards manufactured products, while the share of agricultural products has fallen.

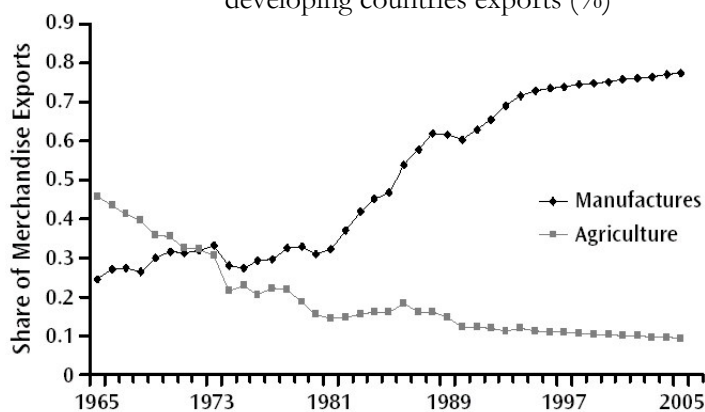
Figure 5.1 Manufacturing and agriculture shares of world exports (%)



Source: Hertel (2000)

This trend is particularly strong in developing countries. Figure 5.2 shows that in the last 40 years, the share of agriculture in total developing country exports has fallen from 45 per cent to less than 10 per cent, while the share of manufactures has risen from 23 per cent to 79 per cent.

Figure 5.1 Manufacturing and agriculture shares of developing countries exports (%)

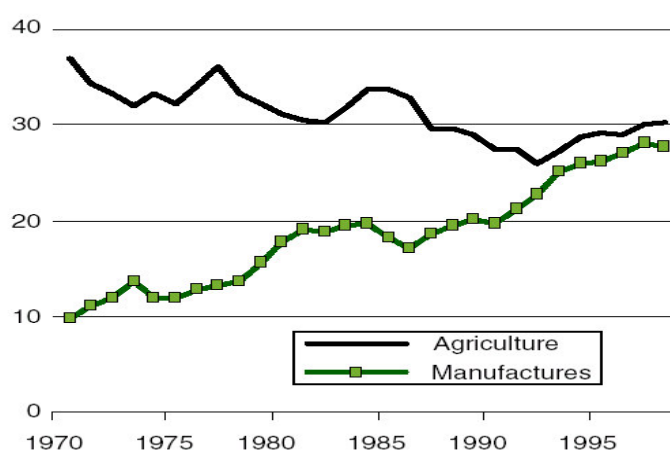


Source: Hertel (2000)

(i) South-North Trade

Despite their export shift from agriculture to manufactures (figure 5.2 above) and their increasing share of the world trade in manufactures (figure 5.3 below), developing countries as a group are still net importers of manufactured goods and net exporters of agricultural goods.

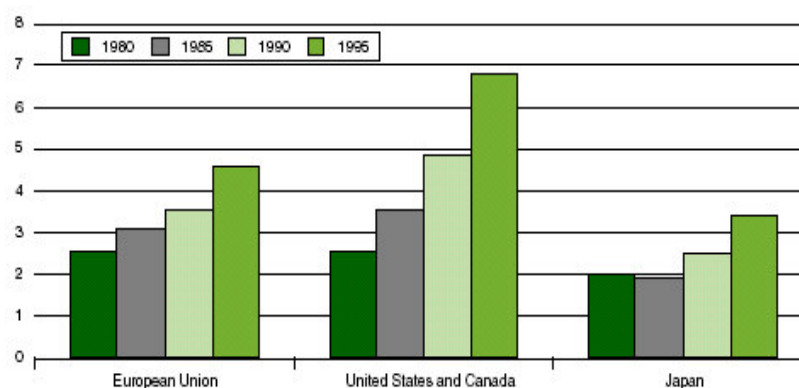
Figure 5.3 Developing countries share of world trade



Source: World Bank (2002)

Figure 5.4 shows that developing countries have succeeded in increasing the quantity of manufactured goods they provide to major developed economies. However even in the last period reported (1995) the shares were low, ranging from just over 3 per cent in Japan to under 7 per cent in North America.

Figure 5.4 Selected developed country imports from all developing countries (% of consumption)



Source: UNCTAD (1996)

Aggregate data hides the existence of tariff peaks, which may restrict access to developing countries products. For example, in the processed food sector, Canadian, Japanese and EU tariffs on fully processed food are 42, 65 and 24 per cent respectively. By contrast, the least processed products face tariffs of 3, 35, and 15 per cent in the same countries. Partly because of these trade restrictions, the penetration of developing country-processed food has been limited (World Bank 2002).

(ii) South-South Trade

Notwithstanding tariff peaks, developing countries goods are subject to much higher barriers in other developing countries than in OECD countries. Table 5.1 shows that developing countries face average manufacturing tariffs of 12.8 per cent in other developing countries but just 3.4 per cent in developed countries.

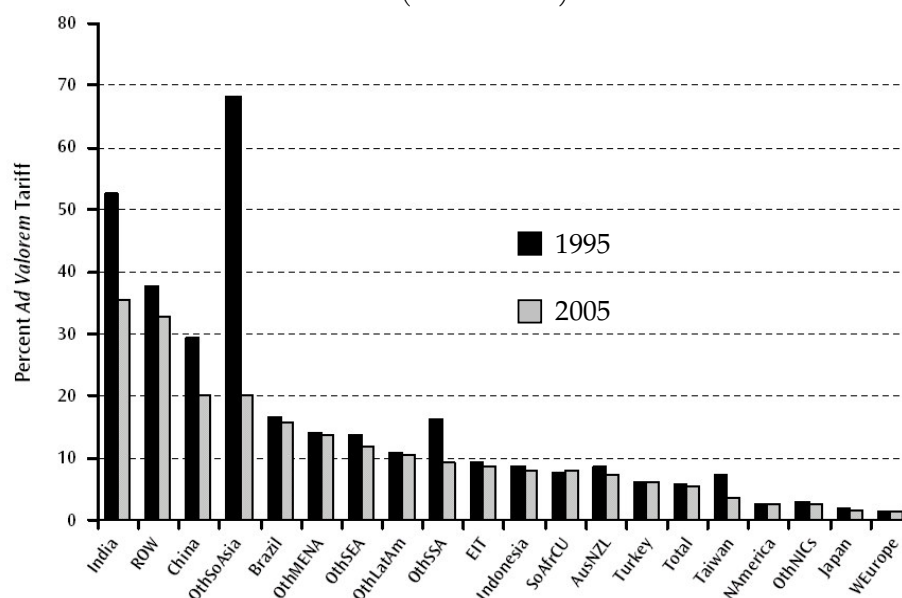
Table 5.1 Average manufacturing tariff rates

This table reports the average tariff rates faced by high and low income countries on their own and each other's goods.

Exporting region	Importing region	
	High-income countries	Developing countries
High-income	0.8	10.9
Developing	3.4	12.8
World	1.5	11.5

Source: Hertel and Martin, 2000

Figure 5.5 Average MFN tariff on manufactures (1995 & 2005)



Source: Hertel (2000)

Figure 5.5 shows the average MFN tariff on manufacturing by importer in 1995 and 2005 (Hertel 2000). The highest tariffs are in developing countries, particularly India, China and Other South East Asia.

5.3 Empirical review

Brown, Deardorff and Stern (2002) use a CGE simulation model to test the effects of trade liberalisation in manufactures. In their model domestic consumers respond to reductions in protection by purchasing more imported goods. Industrial sectors in each country expand or contract depending on whether their protection is reduced by more or less than in other countries. Countries with larger than average tariff reductions experience a real depreciation of their currency to maintain a constant trade balance. Welfare in their model is determined by the effect of these changes on allocative efficiency and each country's terms of trade. The authors also incorporate non-tariff barriers. These generate rents to the preferred exporters, which are lost upon elimination. Thus the effect of liberalisation may not be positive for all exporters.

Brown, Deardorff and Stern (2002) initially apply their model to the Uruguay Agreement on manufactures. They estimate the welfare gains resulting from a scenario in which all countries reduce their tariffs as per the Agreement. Table 5.2 shows that global welfare increases by \$56.5 bn and the gains are shared across all countries. The largest welfare increases in absolute terms accrue to the European Union (\$17.4 bn), however large relative gains – expressed as a share of GDP – accrue to the Rest of South Asia, the Philippines, and Malaysia.

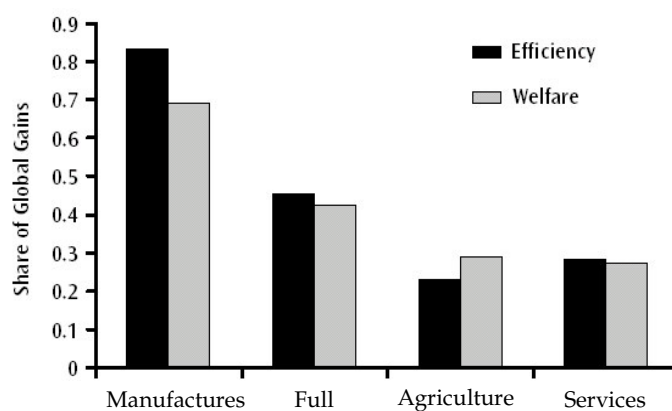
Brown, Deardorff and Stern (2002) follow this simulation with an estimation of the welfare gains available in the Doha Round (table 5.3). They present the results of a 33 per cent reduction in post Uruguay Round tariffs. They estimate that the potential gains from the Doha Round (\$163.4bn from a 33 per cent reduction) are significantly larger than those realised in the Uruguay Round (table 5.2). In particular, most developing countries gain significantly more as a share of GDP than they did in the Uruguay round. The authors suggest that this may be because the Uruguay round was tilted against developing countries.

Hertel et al. (2000) use the GTAP model of global trade to make similar estimates about the welfare gains from a 40 per cent liberalisation of post Uruguay tariffs on manufactures. They find

that the global gain is in the region of \$70bn, roughly the same size as the gains they predict from agriculture. Table 5.4 shows that developing countries get a much larger proportion of the gains from liberalisation of manufacturing trade than they do from agriculture. With the exception of Sub Saharan Africa, all developing countries gain more from the reduction of manufacturing tariffs.

A third study, Hertel (2000) using the same GTAP model, estimates that the benefits of full (100 per cent) reduction in post Uruguay manufacturing tariffs is a global gain of \$130bn. Again, the author predicts that a large share of this will accrue to developing countries. Figure 5.6 shows the developing country share of the gains from reform in three different sectors (and combined reform). Manufacturing is the most beneficial for developing countries (who gain over 70 per cent of the welfare and efficiency dividend). This persistent result in the literature is derived from the fact that developing countries have the highest tariffs on manufacturing goods and thus receive the largest gains from removing the distortions. However, another implication is that the realisation of these allocative efficiency gains will entail significant adjustment costs – a theme we revisit in later sections.

Figure 5.6 The share of liberalisation gains accruing to developing countries across three sectors



Source: Hertel (2000)

Table 5.2

This table shows simulation results from the Uruguay reductions in manufactures.

	Change in Imports	Exports	Terms of Trade	Welfare		Real Wage	Return to Capital
	(Millions)	(Millions)	(Percent)	(Percent)	(Millions)	(Percent)	(Percent)
Australia&NewZealand	2848.0	2527.6	0.347	0.327	1674.8	0.345	0.300
Canada	1071.9	1354.5	-0.086	0.127	926.3	0.137	0.114
EuropeanUnionandEFTA	16826.6	15358.5	0.145	0.159	17405.6	0.157	0.163
Japan	8680.6	8331.3	0.062	0.102	6608.4	0.092	0.115
UnitedStates	12426.0	13459.3	-0.133	0.123	11187.1	0.124	0.122
India	2585.3	3628.9	-2.099	0.446	1875.4	0.316	0.577
SriLanka	98.8	106.3	-0.193	0.558	93.0	0.507	0.608
RestofSouthAsia	3454.8	4820.1	-7.541	2.025	2366.5	2.224	1.828
China	3112.6	1917.7	0.456	0.305	2762.2	0.347	0.271
HongKong	763.5	480.1	0.254	0.360	464.1	0.346	0.373
SouthKorea	2858.6	2733.2	0.068	0.422	2403.3	0.409	0.435
Singapore	3539.8	3647.5	-0.078	2.111	1570.3	1.943	2.258
Indonesia	936.5	894.5	0.068	0.247	626.0	0.291	0.215
Malaysia	2790.9	3411.4	-0.563	1.919	2293.9	1.816	1.974
Philippines	2452.6	3102.1	-1.989	1.917	1691.7	1.853	1.964
Thailand	1264.7	1002.3	0.291	0.366	753.9	0.597	0.283
Mexico	-64.9	1.4	-0.026	0.019	66.3	0.038	0.010
Turkey	319.3	253.9	0.143	0.123	259.1	0.122	0.124
CentralEurope	1871.7	1846.1	0.020	0.294	1091.2	0.311	0.270
Central&SouthAmerica	3778.8	2999.5	0.423	0.022	377.1	0.043	0.004
Total	71616.2	71876.4			56496.0		

Source: Brown, Deardorff and Stern (2002)

Table 5.3 Doha Welfare gains

This table shows simulation results from a 33 per cent reduction in post Uruguay tariffs on manufactures.

	Change in Imports	Exports	Terms of Trade		Welfare	Real Wage	Return to Capital
	(Millions)	(Millions)	(Percent)	(Percent)	(Millions)	(Percent)	(Percent)
Australia&NewZealand	3720.7	3457.2	0.267	0.545	2790.6	0.508	0.515
Canada	1996.0	2097.3	-0.013	0.347	2526.2	0.216	0.251
EuropeanUnionandEFTA	23184.8	22840.3	0.050	0.358	39273.0	0.190	0.199
Japan	19071.4	15817.0	0.548	0.696	45190.9	0.234	0.304
UnitedStates	20454.2	18337.3	0.167	0.260	23634.2	0.198	0.224
India	3280.4	4054.2	-1.384	0.733	3084.4	0.439	0.592
SriLanka	536.8	592.1	-1.025	3.207	534.5	1.565	2.010
RestofSouthAsia	1892.0	2018.4	-0.604	1.895	2214.7	0.889	1.025
China	16080.3	19416.3	-1.221	1.199	10859.3	1.470	1.323
HongKong	3182.8	1840.3	1.246	1.444	1859.1	0.947	0.647
SouthKorea	8023.4	8440.7	-0.233	1.515	8622.9	1.158	1.003
Singapore	4382.9	4161.8	0.131	2.276	1692.5	2.481	2.611
Indonesia	2362.7	2336.0	0.053	0.835	2113.3	0.645	0.447
Malaysia	4242.8	4805.2	-0.488	2.555	3055.1	2.896	2.812
Philippines	3984.0	4535.1	-1.192	5.478	4834.4	3.310	2.461
Thailand	3406.1	3970.1	-0.675	0.873	1798.6	1.664	0.972
Mexico	916.3	1132.6	-0.166	0.364	1283.1	0.195	0.204
Turkey	1421.0	1558.6	-0.335	0.827	1740.3	0.349	0.272
CentralEurope	3866.3	4366.4	-0.428	0.734	2724.2	0.816	0.722
Central&SouthAmerica	5038.9	6103.2	-0.612	0.206	3610.0	0.159	0.108
Total	131043.7	131880.0			163441.4		

Source: Brown, Deardorff and Stern (2002)

Table 5.4. Welfare and Efficiency Gains due to 40% Liberalization in Agriculture and manufacturing: 2005

Both columns report the benefits of reform in terms of equivalent variation.

Region	Total EV by experiment (\$mill.)	
	Agriculture	Manufacturing
Namerica	3401	3310
Weurope	36959	8180
AusNZL	1786	207
Japan	12552	6607
China	172	22593
Taiwan	265	3288
OthNICs	2672	5270
Indonesia	6	792
OthSEA	1931	2631
India	1058	3084
OthSoAsia	1176	1645
Brazil	1988	4491
OthLatAm	3055	1449
Turkey	338	619
OthMENA	-1506	1074
EIT	301	1391
SoAfrCU	129	283
OthSSA	436	249
ROW	2601	2399
World	69320	69564

Source: Hertel et al. (2000) Table 8, page 27

6 Preliminary conclusions

The purpose of the empirical survey above is to suggest a prioritisation of trade issues that will benefit developing countries.

When negotiating parties lobby at the WTO, it is assumed that they do so in their own self-interest. In the case of developing countries and their advocates, it is not always clear what evidence they are using to determine how different reforms will affect them.

The CGE results presented in this note are certainly not perfectly reliable estimates of the welfare effects of various WTO proposals – indeed the estimates vary quite widely between different studies. However they are certainly the best guides to the global effects of WTO proposals.

The results of the empirical survey presented in this note suggest a slightly different prioritisation to the current hierarchy of market access issues receiving attention in the WTO.

Without restating the conclusions summarised in the introduction, it is worth noting that the area which is estimated to offer the smallest gains to developing countries (the reduction of agricultural production subsidies in OECD countries) is one of a series of agricultural issues that receive a considerable amount of attention and were partly responsible for delaying the Uruguay Round by many years.

The evidence presented above suggests that an alternative liberalisation agenda might focus on labor market access, services, and market access for agricultural goods exported by developing countries, tariff peaks for manufactured goods, and the liberalisation of south-south trade.

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