

A South-South Survival Strategy

The potential for trade among developing countries

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Abstract

Trade between developing countries, or South-South trade, has been growing rapidly in recent years following significant reductions in tariff barriers. However, significant barriers remain, and there is currently reluctance among many developing countries to undertake further reductions, instead preferring to focus on opening up access to developed country markets, or to maintain the status quo given that multilateral liberalisation may result in the erosion of preferential access enjoyed by some developing countries.

This emphasis on Northern markets represents a missed opportunity for developing countries. To assess this we compare the potential effects of the removal of barriers on South-South trade with the gains from developed country liberalisation and from regional free trade areas within Africa, Asia and Latin America. A general equilibrium model, GTAP, containing information on preferential bilateral tariffs, is used to estimate the impacts. The results indicate that the opening up of Northern markets would provide annual welfare gains to developing countries of \$24 billion. However, the removal of South-South barriers has the potential to generate gains 60 per cent larger. By contrast, the potential gains from further regional agreements on a continental basis are limited in Africa and Asia, although scope remains in Latin America. The results imply that giving greater emphasis to removing barriers between as well as within continents could prove a successful Southern survival strategy.

Key words: agriculture, trade, modelling, regionalism.

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1. Introduction

Most trade negotiators appear to take a mercantilist view on regional and multilateral trade negotiations, aiming to obtain improved access for their exports while limiting the access other countries have to their domestic markets. In particular, developing countries are keen to access the major developed countries, the United States, the European Union and Japan. However, this emphasis may be misplaced. There is significant scope for improving trade among developing countries themselves. By seeking exemptions for sensitive products in their markets, developing countries are inadvertently limiting the trade opportunities of other developing countries.

Various studies look at the effects of the establishment of regional trade agreements (RTAs). For instance, Venables (2003) reaches the conclusion that benefits from South-South trade agreements are likely to be small and generate trade diversion. In other words, production patterns in Southern countries induced by the trade agreement are unlikely to correspond to their true underlying comparative advantage. The logic of the argument is rooted in neoclassical trade theory, with patterns of comparative advantage being exogenous and immutable. In other approaches, such as the so-called 'New Economic Geography' (Fujita, Krugman and Venables 1999), cumulative causation mechanisms at the core of the formation of industrial clusters 'endogenises' the comparative advantage variable. In such a setting, the qualification of the impact of RTAs goes beyond the trade creation versus trade diversion dimension. For instance, by combining the standard features of the new trade theory and forward and backward linkages among firms, Puga and Venables (1997 and 1998) find more qualified results, although they also argue that North-South preferential trade agreements are likely to offer better prospects for Southern countries, including for non-participating ones. Fugazza and Robert-Nicoud (2005) show that South-South trade can have the effect of lowering the price of intermediate inputs and eventually allows exporters in those countries to serve international markets.

In this paper we examine the potential for gains from liberalisation of South-South trade and compare this with the impacts of developed countries opening up their markets. We use the recently released version 6 GTAP database, which includes preferential tariffs. This differs from previous versions that did not include preferential data. GTAP, a deterministic, comparative static, general equilibrium trade model, is used to assess the potential impacts. We start by examining recent trade flows, identify the existing barriers, and quantify the impacts on developed countries of six alternative scenarios: (i) developed country liberalisation; (ii) liberalisation between developing countries only; and regional trade

agreements within (iii) Sub-Saharan Africa, (iv) Latin America and (v) Asia respectively. We also simulate simultaneously the three regional agreements, to illustrate the importance of links between as well as within regions. Regional agreements have appeared to be politically much more feasible on a continental base than between all developing countries. However, the launch of the third round of GSTP negotiations in June 2004 may change this perception. The Global System of Trade Preferences among developing countries envisages preferential trade arrangements among 43 developing countries from all regions and accession will be opened to China and the group of 77.

The results indicate that there are significant potential gains from South-South trade liberalisation, although part of these gains can be harvested from regional agreements. Policy implications, limitations and conclusions bring the paper to a close.

2. What's at stake?

Many developing and least-developed countries enjoy tariff preferences under the Generalised System of Preferences and more selective schemes, such as the Cotonou Agreement, the Caribbean Basin Initiative, the EU's Everything But Arms initiative and the USA's African Growth and Opportunities Act (AGOA) (UNCTAD 2003). Even taking account of these preferences, average import-weighted applied tariffs on exports from these regions to developed countries are higher than those facing developed countries themselves. This reflects the composition of imports with different tariffs rather than higher tariffs on the same item. It also reflects the relatively weak bargaining power of the developing countries in past rounds of negotiations in that they were unable to secure tariff cuts on the kind of goods that they export.

Table 1 shows trade weighted applied tariffs, levied by developed and developing countries on merchandise exports from each other. These data include preferential rates. On average, developed countries impose tariffs of 2.1 per cent on imports from other developed countries, 3.9 per cent on imports from developing countries and 3.1 per cent from LDCs. The most significant sectors contributing to the higher tariffs on developing country exports are textiles, apparel and leather. On the other hand, developed countries also face higher tariffs when exporting to developing countries (9.2 per cent) than do other developing countries (7.2 per cent), partly reflecting the composition of trade and partly reflecting preferential arrangements among groups of developing countries.

Table 1: Trade weighted average applied tariffs (inc. preferences) by development status

	Developed %	Developing %	Least developed %
Source			
Developed	2.1	9.2	11.1
Developing	3.9	7.2	14.4
Least developed	3.1	7.2	8.3
Total	2.9	8.1	13.6

Source: Computed from WITS/TRAINS (2004) database.

Agriculture alone tells a slightly different story (Table 2), with high protection applied in both developed and developing countries against products from both groups. Developed countries, however, give greater access to least developed country products (2 per cent) than do developing countries (12 per cent). This reflects the various preferential schemes previously mentioned. However, the protection is predominantly against temperate products grown in other developed countries with similar agronomic and climatic conditions. Typical developing country products such as coffee and tropical fruits are not particularly substitutable with temperate products. Notable exceptions are sugar (cane and beet sugar are substitutes), vegetable oils, tobacco and cotton. Many tropical products, such as coffee, attract little protection in developed countries. However, many developing countries have substantial tariffs on tropical commodities.

Table 2: Trade weighted average agricultural applied tariffs (inc. preferences) by development status and degree of processing

	Developed		Developing		Least developed	
	Un-processed	Processed	Un-processed	Processed	Un-processed	Processed
	%	%	%	%	%	%
Source						
Developed	9.0	17.3	15.5	17.3	5.3	16.2
Developing	7.8	13.5	17.3	17.2	10.7	14.5
Least developed	2.3	7.6	11.8	18.5	4.8	12.1

Source: Computed from WITS/TRAINS (2004) database, latest available.

Trade weighted tariffs are averaged by imports, but it is instructive to look at the trade flows themselves to gauge the likely impacts. These are shown in table 3. Total trade in merchandises at world prices amounts to \$5.5 billion (2001) (excluding intra-EU trade). Developed countries import \$1.8 billion from other developed countries and slightly more than \$1.2 billion from developing (including least developed) countries. Developing countries themselves import a greater proportion of the imports from developed countries (\$1.19 billion versus \$0.9 billion) but South-South trade is a substantial proportion nonetheless. Taking into account trade flows, the imputed tariff revenues collected by developed countries amounts to

\$76 billion. By contrast, developing countries are collecting an estimated \$152 billion. Of this, \$83 billion is on imports from developed countries and \$69 billion on imports from other developing countries.

Table 3: Merchandise imports by source, 2001

	Developed	Developing
Source	\$m	\$m
Developed	1,768,340	1,225,821
Developing	1,188,810	903,627
Total	2,957,150	2,129,448

Source: Computed from GTAP 6 database.

The high tariff burden on South-South trade poses the question as to whether developing countries could assist their development by trading more with each other. One advantage is their proximity, which may imply lower transport costs. In addition, other developing countries, by definition at a similar stage of development, may not have the competitive advantage of developed countries. Thus, developing countries opening their markets are less likely to be swamped with imports. On the other hand, the benefits of trade come with divergences in relative factors endowment and costs, and there are fewer potential gains available from trading with countries with similar endowments costs structures to one's own.

3. Scenarios

To assess the potential gains from liberalisation with different groups, we postulate six scenarios. In each case there are no reductions in the services sectors.

Table 4: Alternative liberalisation scenarios

North	Elimination of all import and export taxes and subsidies in developed countries on trade with all countries.
South-South	Elimination of all import and export taxes and subsidies in developing countries on trade with other developing countries.
Southern RTAs	Elimination of all import and export taxes and subsidies in developing countries in Asia, Latin America and Africa on trade with other developing countries in their region. This is a combination of the next three scenarios.
Asia	Elimination of all import and export taxes and subsidies in developing Asian countries on trade with other developing countries in the region.
Latin America and the Caribbean	Elimination of all import and export taxes and subsidies in developing Latin America countries on trade with other developing countries in the region.
Sub-Saharan Africa	Elimination of all import and export taxes and subsidies in developing Sub-Saharan African countries on trade with other developing countries in the region.

Simulations are undertaken using the GTAP version 6 database (GTAP 2005). The database has 87 countries and regions and 57 sectors that are aggregated as shown in table 5. The group 'Other Asia' includes the Republic of Korea and Taiwan Province of China.¹ The remaining groups are, hopefully, self-explanatory. The sectoral aggregation attempts to split out sectors with significant protection, such as textiles, apparel, motor vehicles and electronics. The database includes tariffs, export subsidies and taxes, subsidies on output and on inputs such as capital, labour and land. Border measures are specified bilaterally, so the impact of preference erosion can be ascertained. The data applies to 2001. Preferential tariffs are included in the initial database. Quota rents in textiles and apparel are modelled as export taxes, implying the rents accrue to exporting governments.

GTAP is a general equilibrium model that includes linkages between economies and between sectors within economies. Industries are assumed to be perfectly competitive and are characterised by constant returns to scale. Imports are distinct from domestically produced goods as are imports from alternative sources. Primary factors are substitutable but as a composite are used in fixed proportions to intermediate inputs. We use the standard GTAP closure modified to maintain fixed trade balances for all regions but the USA². This alternative closure is chosen in order to prevent balance of trade surpluses from increasing dramatically³.

Table 5: Country and commodity coverage

Regions	Sectors
European Union	Cereals
USA, Rest of North America	Vegetables, fruits & nuts
Japan	Vegetable oils
Other developed	Sugar
China	Other crops
Other Asia	Livestock
India	Resources
Other South Asia	Dairy
ASEAN	Other foods
Mexico	Textiles
Andean	Apparel
Mercosur	Leather
Rest of Latin America	Non metallic manufactures

1 This group is treated here as a developing country region.

2 The GTAP model requires that imports minus exports equals investment less savings in each region. The standard macroeconomic closure allows investment to adjust to satisfy this condition. A current account deficit is offset by a capital inflow. In the closure used in this paper, capital in other regions would be absorbed by the USA whenever it exceeds regional savings.

3 See Francois (1996) and Hertel et al. (1997) for a detailed discussion on the relevance of alternative closures.

Central America Caribbean	Petroleum and coal products Motor vehicles
South Africa Sub-Saharan Africa South-African Development Community† Middle East and North Africa Central and Eastern Europe Rest of World	Electronics Manufactures Services Transport Business services

† Excludes South Africa.

4. Results

Welfare

Results presented in table 6 indicate that South-South trade liberalization is the most favourable scenario to developing countries as a group. The static annual welfare gains to developing countries are estimated at \$24 billion from liberalisation in the north and \$37 billion from South-South liberalisation.⁴ Most developing regions gain from the removal of barriers between developing countries alone. Moreover, when losses are observed, they remain relatively small. The major beneficiaries are Other Asia (Korea and Taiwan), MENA, ASEAN and MERCOSUR countries and China. However, Central America and the Caribbean, India, Sub-Saharan Africa (excluding SADC countries), Central and Eastern Europe and Other South Asia are net losers. So too are the developed countries. Table A1 shows that net losses are driven by negative terms of trade welfare effects essentially in the manufacturing sectors, although India faces a strong negative effect in livestock and resources sectors. Net gains are the result of both positive allocative and terms of trade welfare effects. Positive allocative effects are driven principally by reforms in manufacturing sectors. However, in the case of the Other Asia region, reform in agricultural sectors and in particular the cereals sector is generating more than half the total allocative welfare effects. In the case of Sub-Saharan African countries, the allocative welfare effect generated by liberalization of the cereals sector is accounting for more than 90 per cent of total welfare gain due to allocative effects. Removal of agricultural barriers between developing countries generates welfare gains due to reallocation effects in developing countries of \$10 billion (almost 48 per cent of total reallocation welfare gains), compared with gains of \$11 billion (50 per cent of total reallocation welfare gains) from reform in the manufacturing sector. However, if the Other Asia country group is excluded, allocative gains due to reform in agricultural sectors fall to \$4.1 billion, which represent only one fourth of gains due to reform in manufacturing sectors.

⁴ The welfare measure used here is equivalent variation, the maximum amount of income the consumer is willing to pay to avoid the price change.

The European Union, North America, Japan and Other Developed countries experience welfare losses derived from negative terms of trade effects in the manufacturing (in particular metallic and non metallic manufactures, and electronics) and service sectors (essentially business and transport services). This stems from a fall in the price of exports of these goods. Because terms of trade effects sum to zero globally, these negative effects are correspondingly positive for developing countries through lower import prices.

Table 6 Change in welfare relative to base

	Free Trade	North-South	South-South	Southern RTAs	SSA	LAC	Asia
European Union	28387	1066	-7740	-2885	-157	-844	-1015
USA	6898	-2125	-7092	-2512	-32	-1384	-830
North America	1122	966	178	-44	8	-4	-81
Japan	26258	17378	-2790	-1386	-13	-190	-1004
Other developed	3290	2286	-699	-387	1	7	-408
Subtotal	65956	19570	-18143	-7214	-194	-2414	-3338
China	6800	7853	2768	283	-20	-61	561
India	561	752	-374	-1431	-46	-28	-1217
Other Asia	12848	2866	16262	12494	-25	-173	12755
Other South							
Asia	-942	289	-125	-161	-4	-1	-103
ASEAN	7646	5665	7807	1517	-18	14	1628
Asia Subtotal	26912	17424	26339	12702	-113	-249	13624
Mexico	-165	-1128	1163	826	4	843	-29
Andean	-594	372	570	-541	5	-294	-283
Mercosur	4304	4212	2947	1731	-9	2097	-365
Rest of Latin							
America	424	925	43	356	-1	451	-95
Central America	-244	1163	-515	-49	0	34	-76
Caribbean	-232	58	-98	25	-1	40	-11
LAC Subtotal	3493	5603	4109	2348	-2	3170	-858
South Africa	431	113	1136	243	371	-12	-115
Sub-Saharan							
Africa	-1718	-585	-534	-202	-97	-5	-117
South-African							
Development							
Community	581	519	-73	-226	-167	0	-60
Africa Subtotal	-705	47	530	-185	108	-17	-292
Middle East and							
North Africa	-365	-566	6006	608	1	4	-532
Central and							
Eastern Europe	-560	15	-191	-80	-2	-7	-43
Rest of World	976	1505	109	-129	14	0	-157
Rest Subtotal	51	954	5924	399	13	-4	-731
World Total	95706	43599	18759	8051	-187	487	8405

Source: GTAP simulations.

The benefits from regional integration are less substantial, although positive nonetheless. Results also indicate that regional integration implies welfare losses for non-integrating regions. Regional integration is a good response to trade blocs forming elsewhere. It may be less than optimal but better than being left out altogether.

Liberalisation within developing Asia (China, Other Asia, India, Other South Asia and ASEAN) generates gains in these countries of \$12.7 billion. Gains to Asia (i.e. excluding Japan) from South-South liberalisation are \$26.3 billion, illustrating the links between Asia and other developing countries.

The benefits from a Latin American free trade area are less than from South-South liberalisation. The LAC region is also the only region that would benefit more on aggregate from North-South than from South-South trade liberalization, although this qualification does not hold for Mexico. The latter is better off by \$1.1 billion in the South-South scenario but worse off by \$1.1 billion in the North-South scenario. Mexico's welfare gains are due essentially to positive allocative effect in the motor-vehicles, electronics and textiles sector. Losses come from negative terms of trade welfare effects in these same sectors. Central America and Caribbean lose \$0.6 billion from South-South liberalisation and gain \$1.2 billion from North-South liberalisation due to positive terms of trade effects. Regional integration leaves their welfare almost unchanged.

The gains to Africa (excluding North Africa) from liberalisation within the region amount to a small \$0.1 billion. Those that would be obtained from North-South trade liberalization are half that. Benefits to Africa from South-South liberalisation are the highest (\$0.52) of all the scenarios, although they remain modest in absolute terms. The bulk of the gains come from allocative efficiency gains encountered in the cereals sector, and to a much lesser extent in the textiles, apparel and leather sectors. Terms of trade effects are either negative or almost insignificant in all sectors. Simulations indicate that Sub-Saharan Africa would gain substantially by trade reform only if it occurs within a context of a preferential and exclusive access to northern markets.⁵ In that context, welfare gains could reach \$5.6 billion and almost at no cost to developed and other developing countries.

The conclusion here is that, with the exception of Latin America, developing countries are missing out if they follow a regional approach. However, Central American and Caribbean

⁵ See Fugazza and Peters (2005) for a detailed presentation.

countries would benefit more from North-South liberalisation than from any other liberalisation scenario.

Exports

Trade negotiators seem primarily concerned about exports. In this respect South-South trade reform is estimated to be beneficial for most of the developing country regions as shown in table 7. The exceptions are CEE countries, the Rest of World and to a much lesser extent the Andean Pact countries whose exports increase by 0.8 per cent in the South-South liberalisation scenario versus 0.9 per cent in the North-South liberalisation scenario. In most cases the gains in export revenues from South-South liberalisation far exceed the benefits of further access to northern markets. Most notable is India, which faces significant barriers in exporting textiles, apparel and non-metallic manufactures (paper products, chemicals, rubber and plastics) to other Asian countries. In most instances the gains from a regional RTA are reduced. This is particularly true for Sub Saharan African countries. For example, South-African exports increase 4.7 per cent following South-South liberalisation as against 1 per cent with regional integration. Sub-Saharan African exports increase 12.2 per cent following South-South liberalisation as against 2.6 per cent with regional integration. In addition, each RTA leads to negative trade effects on many non-members. This is particularly true when Asia liberalise its trade region-wide. Three simultaneous RTAs do not provide much additional benefit either. Indeed, there are significant trade diversion effects except for the Asian region countries which obtain the same rise in exports than with Asian regional integration alone.

When looking at the changes in the destination of exports from the various regions and country groups, the results indicate that South-South liberalisation would significantly change the current geography of trade while North-South liberalisation would affect it only slightly. With South-South trade liberalisation, inter-regional exports within developing regions increase dramatically. For instance, exports from the ACP region to the LAC region increase by 62 per cent and those to the SSA region by 72 per cent. Export from the SSA region to the ACP region increase by 55 per cent. Exports among developing countries increase at the expense of exports directed to developed regions. We also observe that intra-regional trade increases for all developing countries except those in Sub Saharan Africa.

Tariff revenues

Many developing countries are concerned that trade liberalisation will have a significant adverse impact on government revenues because tariff revenues make up a substantial contribution to public revenue. Eliminating tariffs altogether implies tariff revenues would be

reduced to zero. In addition, although partial tariff cuts may lead to a rise in tariff revenue because of the increase in trade flows associated with liberalisation, preferential agreements lead to a switch in supplies away from the taxable source, reducing revenues even further. Many developing countries would have to raise taxes on income, profits, capital gains, property, labour and consumption or through non-tax revenues to compensate. Broad-based taxes have the advantage of being less distortionary but they are not as simple to collect as tariff revenues, particularly for countries with poorly developed administrative systems. The simulation results indicate the South-South scenario would result in an estimated 55 per cent decline in developing country tariff revenues, with regional averages of 61, 36 and 60 per cent in Asia, Latin America and Africa respectively (see table 8). The global average tariff revenue reduction is 34 per cent from \$231 billion to \$151 billion. The regional scenarios result in a lesser impact in the developing country regions.

Table 7 Change in value of exports relative to base

	Initial	North		South-South		Southern RTAs		Africa		LAC		Asia	
	\$m	\$m	%	\$m	%	\$m	%	\$m	%	\$m	%	\$m	%
European Union	2678088	44590	1.7	-9079	-0.3	-4365	-0.2	-161	0.0	-857	0.0	-2517	-0.1
	888876	41404	4.7	-11618	-1.3	-4942	-0.6	-80	0.0	-2293	-0.3	-2320	-0.3
North America	267870	11711	4.4	-332	-0.1	-123	0.0	-3	0.0	-110	0.0	46	0.0
Japan	453022	28604	6.3	-4449	-1.0	-2283	-0.5	-23	0.0	-145	0.0	-2134	-0.5
Other developed	260785	15650	6.0	-1007	-0.4	-462	-0.2	-10	0.0	-70	0.0	-279	-0.1
Subtotal	4548641	141959	3.1	-26484	-0.6	-12176	-0.3	-276	0.0	-3476	-0.1	-7205	-0.2
China	476525	2730	0.6	41305	8.7	32690	6.9	-29	0.0	-100	0.0	32956	6.9
India	60563	217	0.4	22661	37.4	15420	25.5	-29	0.0	-25	0.0	15500	25.6
Other Asia	318781	995	0.3	16325	5.1	11294	3.5	-16	0.0	-26	0.0	11371	3.6
Other South Asia	28366	379	1.3	7729	27.2	7123	25.1	-2	0.0	-6	0.0	7162	25.2
ASEAN	446671	-4610	-1.0	17152	3.8	5311	1.2	-5	0.0	-183	0.0	5557	1.2
Asian Subtotal	1330905	-289	0.0	105172	7.9	71837	5.4	-80	0.0	-340	0.0	72546	5.5
Mexico	165602	-162	-0.1	8427	5.1	3244	2.0	-2	0.0	3009	1.8	237	0.1
Andean	52732	478	0.9	398	0.8	2553	4.8	-3	0.0	2505	4.8	52	0.1
Mercosur	102620	1269	1.2	8947	8.7	5572	5.4	-11	0.0	5683	5.5	-120	-0.1
Rest of Latin America	55025	6	0.0	3560	6.5	2382	4.3	-3	0.0	2415	4.4	-31	-0.1
Central America	27076	398	1.5	1566	5.8	500	1.8	0	0.0	513	1.9	-11	0.0
Caribbean	7495	-15	-0.2	737	9.8	104	1.4	-1	0.0	112	1.5	-7	-0.1
LAC Subtotal	410550	1974	0.5	23636	5.8	14355	3.5	-20	0.0	14238	3.5	120	0.0
South Africa	39911	18	0.0	1859	4.7	279	0.7	389	1.0	-22	-0.1	-79	-0.2
Sub-Saharan Africa	44809	-370	-0.8	5476	12.2	1084	2.4	1144	2.6	-3	0.0	-42	-0.1
South-African Development Community	23561	179	0.8	1618	6.9	914	3.9	897	3.8	-5	0.0	26	0.1
Africa Subtotal	108281	-172	-0.2	8954	8.3	2276	2.1	2430	2.2	-30	0.0	-96	-0.1
Middle East and North Africa	312286	-840	-0.3	22972	7.4	10137	3.2	-47	0.0	-141	0.0	-578	-0.2
Central and Eastern Europe	36418	-12	0.0	-166	-0.5	-90	-0.2	-2	0.0	-4	0.0	-58	-0.2
Rest of World	150555	488	0.3	-702	-0.5	-384	-0.3	-5	0.0	-38	0.0	-283	-0.2
Rest Subtotal	499259	-364	-0.1	22104	4.4	9663	1.9	-53	0.0	-182	0.0	-918	-0.2
World	6897635	286578	4.2	244661	3.5	162249	2.4	4055	0.1	20603	0.3	129812	1.9

Source: GTAP simulations.

Table 8 Change in tariff revenues relative to base

	Initial	North		South-South		Southern RTAs		Africa		LAC		Asia	
	\$m	\$m	%	\$m	%	\$m	%	\$m	%	\$m	%	\$m	%
European Union	27075	20	-100	26219	-3	26780	-1	27069	0	26950	0	26944	0
	20119	0	-100	19850	-1	20069	0	20123	0	20109	0	20066	0
North America	3643	76	-98	3614	-1	3634	0	3643	0	3640	0	3634	0
Japan	17062	26	-100	16938	-1	16946	-1	17065	0	17074	0	16933	-1
Other developed	7908	1	-100	7787	-2	7844	-1	7906	0	7914	0	7846	-1
Subtotal	75806	122	-100	74407	-2	75273	-1	75804	0	75686	0	75423	-1
China	32525	34046	5	15361	-53	18866	-42	32522	0	32552	0	18882	-42
India	13591	13792	1	2932	-78	5757	-58	13575	0	13597	0	5805	-57
Other Asia	17760	17569	-1	6837	-62	8085	-54	17758	0	17740	0	8095	-54
Other South Asia	4330	4434	2	744	-83	1354	-69	4329	0	4335	0	1364	-68
ASEAN	15252	15683	3	6304	-59	8185	-46	15251	0	15256	0	8199	-46
Asian Subtotal	83457	85524	2	32177	-61	42248	-49	83435	0	83480	0	42345	-49
Mexico	6760	6564	-3	3796	-44	5732	-15	6760	0	5768	-15	6731	0
Andean	4740	4852	2	4803	1	2854	-40	4740	0	2883	-39	4711	-1
Mercosur	7840	8336	6	4838	-38	6644	-15	7839	0	6697	-15	7788	-1
Rest of Latin America	4311	4416	2	2171	-50	3089	-28	4311	0	3112	-28	4293	0
Central America	2647	2795	6	1416	-46	2288	-14	2647	0	2300	-13	2636	0
Caribbean	979	980	0	544	-44	981	0	979	0	984	1	975	0
LAC Subtotal	27275	27942	2	17569	-36	21587	-21	27274	0	21744	-20	27133	-1
South Africa	1657	1679	1	1012	-39	1616	-2	1630	-2	1656	0	1644	-1
Sub-Saharan Africa	7041	6899	-2	2642	-62	6321	-10	6355	-10	7044	0	7006	0
South-African Development Community	2163	2232	3	646	-70	1456	-33	1483	-31	2164	0	2138	-1
Africa Subtotal	10861	10810	0	4300	-60	9393	-14	9467	-13	10863	0	10788	-1
Middle East and North Africa	22784	22594	-1	12128	-47	18862	-17	22783	0	22798	0	2903	-87
Central and Eastern Europe	2911	2863	-2	2890	-1	2901	0	2910	0	2912	0	2903	0
Rest of World	8073	8360	4	8033	0	8032	-1	8074	0	8078	0	8029	-1
Rest Subtotal	33767	33817	0	23051	-32	29795	-12	33767	0	33788	0	13835	-59
World	231165	158214	-32	151505	-34	178296	-23	229747	-1	225561	-2	189274	-18

Source: GTAP simulations.

Sectoral effects

Policymakers are interested in individual sectors, as some sectors are regarded as sensitive and a greater weight attached to their output, employment or exports. In addition, it is more difficult to move labour out of some sectors (e.g. fisheries) than others, or there may be limits to expansion in other sectors due to resource (e.g. water) or environmental constraints.

The major impacts of liberalisation are felt in those sectors where large trade flows are coupled with significant protection levels. These are typically agriculture, textiles and motor vehicles. This also holds to a large extent for South-South liberalisation. However, compared with North-South liberalisation, South-South liberalisation is accompanied by a larger impact in manufacturing sectors relative to agriculture products sectors.

The largest percentage increases in exports among the developing countries occur in cereals in Asia, dairy products in Asia and Latin America, livestock in Asia, vegetable oils in Asia and Africa, and motor vehicles in Asia (see appendix table A2). The increase can reach more than 300 per cent as in the case of the cereals sector in Other Asia group. However, big increases often occur in countries which initially had only small share of world exports and as a consequence do not modify dramatically the geography of sectoral trade. The largest percentage (-27 per cent) decrease in exports occurs in apparel for the MERCOSUR country group. Otherwise, and as far as merchandises exports are concerned, there are no cases where more than 15 per cent of the initial exports are eliminated.

As to developed countries, South-South trade liberalisation causes decreases in exports in almost all merchandises sectors. Decreases can be as much as 98 per cent as in the case of cereals in Japan. Developed countries export markets shares fall significantly in the agricultural products and apparel sectors. Drops in market shares are more pronounced for the USA and Japan than for the European Union.

In terms of the necessary adjustments, perhaps a better indication can be gauged from changes in output. These are somewhat arbitrary as they depend on the aggregation of sectors. Broader aggregation leads to smaller percentage changes. The largest estimated percentage falls in output from South-South liberalisation occur in the Other Asia cereals and vegetable oils sectors (see appendix table A3). Output falls by 56 per cent in the cereals sector and by 75 per cent in the vegetable oil sector. However, both sectors initially represented only small shares of total output meaning that inherent adjustment costs are likely to be contained. Bigger concerns could be raised for Sub-Saharan African countries where output in cereals sectors is falling by 13 per cent when it initially represented almost 5 per

cent of output. This also holds for the textiles, apparel and leather sectors where output is falling on average by more than 15 per cent when it initially represented more than 2 per cent of total output. We also obtain that output in textiles and apparels is falling by almost 20 per cent in MENA countries when it initially represented almost 1.5 per cent of the region output.

Changes in value terms highlight the main differences between North-South and South-South liberalization in terms of production structure (See table 9). First, although under both scenarios, production in agricultural goods increases, it is almost ten times higher when access to Northern markets is liberalised. Second, and perhaps more importantly, production in manufacturing goods falls dramatically in developing countries in the North-South liberalisation scenario, while it increases substantially in the South-South liberalisation scenario. While North-South trade liberalisation gives better access to developing countries products, especially in agricultural products markets, South-South trade liberalisation also gives also access to the unexploited manufactures markets. This result becomes highly relevant when assessing the respective development potential of each scenario.

Table 9: Changes in Output Values by Economic Sectors

		South-South	North-South
		\$m	\$m
Agriculture	Developed	-8248	-81287
	Developing	6203	55643
Manufactures	Developed	-33453	60001
	Developing	25654	-56165
Services	Developed	23440	20713
	Developing	-13506	-12283

Source: GTAP simulations

A more detailed analysis of South-South liberalisation results reveals that in value terms the most significant falls in output are in electronics in Other Asian countries (-\$14.8 billion) and in non-metallic manufactures in China (-\$10.5). Increases in non-metallic manufactures production in MENA (\$12.6 billion), ASEAN (\$5.5 billion), Other Asia (\$3.7 billion) and India (\$2 billion) cover the fall in production in China and some developed countries.. Although non-metallic manufactures include products such as chemicals whose production requires high skill and technology intensity, it is reasonable to think that MENA countries move part of their production resources from textiles towards non-metallic manufactures that are also labour intensive, such as mineral products or wood and paper. The fall of production in electronics in Other Asian countries is matched by an increase in all developed countries, in particular in the European Union, the USA and Japan, and in China and Mexico. Imports in developed countries markets initially originating from Other Asia are supplanted by imports

from other developed countries and Mexico in the case of the USA. China also exports less to those markets but more to the ASEAN and Mexican markets. In addition Other Asia and ASEAN exports to China are expected to surge. In the North-South liberalisation scenario, only Mexico is able to export significantly more, once again thanks to its access to the US market. All the other developing country exports are falling, sometimes quite substantially, which is essentially due to a reallocation of productive resources towards agricultural products.

There are also significant drops in output in textiles (-\$12.3 billion) and apparel (-\$7 billion) in the developed countries. Output drops also translate into conspicuous falls in export. There are also important reductions in production, and to a large extent in export, in Middle East and North Africa, MERCOSUR and Mexico. China, India, Other Southern Asia and Other Asia fill in the production and export gap for textiles and to a large extent for apparel. This represents a significant shift in textile production to developing countries. However, the shift in apparel manufacture is smaller. Textile production is generally more capital intensive than apparel but the technological requirements are not so demanding to put it out of reach of mid-range developing countries. Perhaps the most significant shift occurs in China, which imports additional textiles (but not apparel) from Other Asia (Korea and Taiwan). The imported textiles are used to produce apparel that is then exported to MENA. Some countries show an increase in output in the textile sector but at best a small increase in the downstream processing stage. For example, countries belonging to the Other Asia group also expand their textile sector, but only slightly increase output of apparel. By contrast, in Central America, output of apparel expands almost six times as much as output of textiles, reflecting differential protection on these products. In Other South Asia, the same pattern appears although output in apparel is increasing only twice as much as that of textiles. North-South liberalisation gives substantial differences in the results as far as export destinations are concerned. In particular, China is found to cover most of the exports to developed countries markets. In the South-South scenarios exports to these markets originate from other developing countries and not from China whose exports flow to other developing countries.

Another highly protected sector is motor vehicles, parts and components. The average applied tariff imputed from the GTAP database is 3.3 per cent globally, but 11 per cent on developing country imports.⁶ Among the developing countries the major exporters are Other Asia, Mexico and Mercosur. These countries operate assembly industries with a high proportion of imported components. For example, Mexican imports in this sector are valued at 75 per cent

⁶ This estimate is imputed from the GTAP database, and may not reflect actual revenues collected.

of its exports. Following South-South liberalisation exports from Mercosur (\$4.5 billion), Other Asia (\$4.3 billion), China (\$4.3 billion), Mexico (\$2.5 billion), and ASEAN (\$1.6 billion) displace those from Europe (-\$4.2 billion), Japan (-\$2.5 billion) and North America (-\$3.9 billion). In the North-South liberalisation scenario, all developed countries would see their export increase, in particular Japan (\$13 billion) while developing countries exporters would all face decreases, with the exception of Other Asia countries.

5. Concluding remarks and implications

A feature of South-South trade is that developing country economies are, by definition, at a similar stage of development, and the levels of competitiveness are somewhat similar. Developing countries need be less concerned about being swamped by high quality or cheap imports with which it is difficult to compete. Nonetheless, many developing countries appear concerned about China, which has the potential to be competitive in many markets, particularly textiles and apparel, sectors where many other developed countries see themselves competing. These fears appear to be founded specially in the context of a North-South trade liberalisation. Results presented here also suggest that if China were to expand into these sectors it would vacate others, such as non-metallic manufactures, agriculture and services. In addition, a surge in Chinese exports implies a similar increase in imports. For developing countries, an important question is where these additional imports are likely to come from. In the North-South liberalisation scenario those imports would principally come from developed countries. On the contrary, in the South-South liberalisation scenario, those imports would come from other developing countries. Principal import sources would be other Asian countries and MERCOSUR.

A limitation of regional agreements within developing countries is that the economies are not so different, and the potential gains stemming from differing relative factor endowments and costs are not forthcoming. Many countries within Africa have low labour and high capital costs, and the gains from trading with each other are limited and even contrasting. Contrasting results are evident when comparing the effects of North-South and South-South liberalisation. For individual developing countries, obtaining further access to developed countries markets is particularly beneficial if preferential access is obtained, but this is at the expense of other countries who are shut out.

Some limitations ought to be noted when drawing inferences from this analysis. Missing from the modelling are several factors important in trade negotiations, such as the investment and competition policies, SPS, TBT, services and various so-called non-trade concerns. In

addition, there are deficiencies in the model, both in the structure and data. For example, there are no dynamic gains calculated here. These include the increase in productivity resulting from enhanced competition and new technologies. These gains may outweigh the static gains. Also ignored are the benefits of increasing returns to scale, which imply that specialization of production leads to productivity gains. Monopolistic competition is also ignored (also in foreign markets, where the power of large marketing chains often drives down prices received by producers in developing countries). Nor is there consideration given to adjustment costs. These are difficult to measure, but real enough, even though they occur only once whereas the benefits accrue every year. Labour is assumed to be fixed, whereas in reality there is scope for drawing unemployed or underemployed labour into the workforce, especially in developing countries. This makes a significant difference to the welfare effects, reinforcing both the gains and losses.

The inclusion of preferential tariffs in this database makes its use desirable, but it also remains relatively untested. There is uncertainty about the utilisation of preferences and how quota rents should be allocated. There is also scope for debate about the method used to convert from specific to ad valorem tariffs, and to the weight given to inquota versus outquota tariff rates, or the use of simple versus trade weights to aggregate across tariff lines. Data on services protection are missing for most countries. Furthermore, there are bound to be errors and omissions in databases of the size used here.

These qualifications affect the magnitude of the estimated gains and losses, but apply across all scenarios. The ranking of the outcomes are unlikely to change by addressing these concerns, and hence the conclusions drawn from the results are likely to be relatively robust.

Given these estimated potential impacts on welfare, trade flows, government revenues and output, and keeping in mind possible drawbacks and limitations of the methodology adopted in this paper, what can be said about a developing country's optimal strategy?

Generally speaking, within the WTO negotiations members can self-select their status, possibly to take advantage of the lesser reduction commitments imposed on developing countries. However, it is difficult to envisage substantial tariff reductions coming from the current WTO round, because a large number of countries need to reach a consensus. In that respect, the advantage of regional agreements is that tariff reductions can be deeper and wider than multilateral agreements. Tariff concessions among the developing countries are permitted under the Enabling Clause of the General Agreement on Tariffs and Trade. However, sensitive products are often excluded from regional agreements as well.

The simulations undertaken here merely show that there are potentially large gains from South-South trade, but capturing these gains would require substantial reform, and this has invariably proved difficult to implement. However, the recent revival of the GSTP programme could be a very efficient means of realising these gains.

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Table A1: Decomposition of Welfare Effects**A. Contribution to Welfare of Allocative Effects**

	North- South \$m	South- South \$m	Southern RTAs \$m	SSA \$m	LAC \$m	Asia \$m
European Union	14434.37	-1814.64	-463.38	-18.11	-242.46	-16.54
USA	1751.25	102.58	331.25	1.33	-59.38	384.86
North America	3522.76	9.67	10.95	0.73	-1.57	6
Japan	18800.64	-311.7	-149.01	-2.73	-2.43	-116.47
Other developed	3058.59	-177.9	-59.62	-2.48	5.87	-49.84
China	2343.98	1847.12	583.64	-6.02	-24.29	657.24
India	102.73	2380.6	969	-20.07	-15.43	1036.02
Other Asia	-50.18	8321.27	6364.09	-4.75	-64.88	6394.46
Other South Asia	-21.14	712.99	600.5	-1.05	1.19	611.99
ASEAN	358.45	1153.24	119.09	-1.22	-11.21	149.21
Mexico	-389.96	1156.02	283.73	-0.12	278.75	6.27
Andean	48.87	78.11	-94.57	0.14	-68.41	-29.66
Mercosur	584.42	486.77	527.77	-2.09	580.87	-51.38
Rest of Latin America	114.59	156.28	120.42	-0.46	141.96	-20.46
Central America	156.49	-86.85	6.6	-0.02	22.79	-14.74
Caribbean	-19.68	-15.15	-8.71	0	-4.35	-4.18
South Africa	17.47	284.19	22.76	49.89	-3.29	-23.79
Sub-Saharan Africa	-259.78	265.77	-146.92	-103.11	-3.75	-38.41
South-African Development Community	47.65	182.33	-102.37	-68.83	-1.18	-30.69
Middle East and North Africa	-436.88	4435.31	-657.81	-9.35	-15.1	-267.6
Central and Eastern Europe	-82.88	-41.83	-17.66	-0.48	-2.75	-7.55
Rest of World	-161.25	-5.19	-47.65	3.12	-5.51	-48.59

Table A1: Decomposition of Welfare Effects (Continued)**B. Contribution to welfare of changes in terms of trade**

	North- South \$m	South- South \$m	Southern RTAs \$m	SSA \$m	LAC \$m	Asia \$m
European Union	-14330.1	- 7100.33	-2906.48	-156.27	-626.59	-1438.2
USA	-3258.79	- 6262.79	-2135.83	-31.24	-1024.37	-853.18
North America	-2803.5	-59.75	-176.29	3.9	-16.79	-189.89
Japan	-1920.19	- 3587.95	-1809.56	-23.26	-241.16	-1379.3
Other developed	-1154.69	-843.05	-498.05	-0.36	-14.89	-504.88
China	6483	977.64	-883	-30.26	-80.47	-578.65
India	585.04	- 2887.73	-2470.15	-27.32	-14.37	-2318.37
Other Asia	3258.7	9346.92	6987.03	-26.81	-142.49	7269.82
Other South Asia	258.15	-803.82	-721.84	-3.25	-2.41	-678.07
ASEAN	5991.09	7277.43	2076.97	-25.29	1.38	2210.4
Mexico	-924.43	-157.71	507.69	2.3	594.85	-96.47
Andean	306.92	463.25	-476.34	3.98	-237.94	-270.15
Mercosur	3526.89	2356.91	1155.71	-8.27	1497.6	-340.56
Rest of Latin America	789.43	-154.48	220.51	-0.68	308.69	-88.76
Central America	810.93	-281.64	-70.12	0.49	-23.31	-43.58
Caribbean	39.53	-13.77	5.91	-0.21	3.78	4.01
South Africa	99.69	953.46	248.62	395.85	-11.44	-133.96
Sub-Saharan Africa	-317.7	-530.32	-29.88	12.33	-0.08	-59.7
South-African Development Community	478.4	-291.2	-132.78	-102.66	1.04	-33.59
Middle East and North Africa	-254.15	1419.83	1217.68	7.45	13.91	-355.31
Central and Eastern Europe	115.16	-82.24	-23.4	-0.63	-1.32	-3.72
Rest of World	1881.67	-131.2	-243.12	8.14	-1.94	-256.71

Source: GTAP simulations

Table A2 Change in sectoral exports relative to base from South-South liberalisation (per cent)

	CER	VFN	VOL	SGR	OCR	LVS	RES	DRY	OFD	TXT	WAP	LEA	NMM	P_C	MVH	ELE	MMN	SER	TRN	BFS
European Union	-2	1	1	-3	-2	0	2	-1	-2	-8	-10	-1	-1	-1	-1	1	-1	3	2	2
	-11	-4	-25	-5	-7	-3	1	-16	-6	-17	-27	-17	-2	-5	-4	-1	-1	3	2	3
North America	-3	-5	-20	0	0	-1	2	-11	-2	-5	-5	-1	-1	0	0	2	0	3	1	2
Japan	-98	-12	-29	-40	-8	-3	-5	-3	-13	-25	-20	-5	-3	-6	-3	1	0	4	3	4
Other developed	-6	-5	-17	-17	-8	-3	1	-3	-5	-8	-10	-4	-1	-1	-4	1	-1	3	2	2
China	239	43	48	39	44	1	15	25	5	27	20	3	6	17	52	10	10	-1	-3	-4
India	53	20	24	60	25	79	81	161	27	32	9	31	40	43	94	58	68	6	7	5
Other Asia	339	26	23	67	61	280	0	49	103	50	29	42	16	14	19	-8	8	-2	-13	-17
Other South Asia	15	42	533	5	29	48	32	76	16	24	27	22	55	37	8	53	70	1	1	0
ASEAN	51	14	2	14	26	77	-2	40	-1	19	-1	2	17	4	24	0	17	-5	-8	-11
Mexico	0	0	16	14	3	4	4	126	6	0	-2	13	6	3	9	9	4	1	0	0
Andean	-2	5	1	3	-2	9	2	26	3	2	-4	0	9	2	3	3	2	0	-2	-2
Mercosur	53	-8	65	35	6	-7	6	183	7	-9	-27	-7	0	3	44	11	9	-3	-6	-6
Rest of Latin America	0	7	5	-3	8	9	5	36	2	11	-2	12	8	16	38	19	11	1	-1	0
Central America	-2	1	-2	0	0	15	9	23	3	7	10	19	3	13	10	13	7	2	1	1
Caribbean	1	1	1	14	16	10	10	266	7	48	71	70	14	5	14	17	18	1	-1	-1
South Africa	5	16	187	1	7	18	4	97	15	40	50	25	29	3	25	38	30	6	7	6
Sub-Saharan Africa	6	26	3	15	17	1	2	60	10	-5	3	4	8	1	19	14	14	4	2	4
South-African Development Community	24	-1	-1	16	26	-1	5	-15	11	-9	8	-6	-2	7	4	-6	18	-5	-6	-8
Middle East and North Africa	40	4	111	0	13	-1	1	14	8	11	23	9	38	4	15	9	16	-2	-4	-5
Central and Eastern Europe	-3	0	-1	-8	-2	0	4	0	0	-4	-5	2	-2	0	-4	3	-1	3	2	2
Rest of World	-3	0	2	-3	-3	0	3	-1	-6	-5	-5	1	-4	0	-4	-2	-2	3	2	1

Source: GTAP simulations

Table A3 Change in output relative to base from South-South liberalisation (per cent)

	CER	VFN	VOL	SGR	OCR	LVS	RES	DRY	OFD	TXT	WAP	LEA	NMM	P_C	MVH	ELE	MMN	SER	TRN	BFS
European Union	0	0	2	0	0	0	1	0	0	-5	-4	0	0	0	-1	1	0	0	0	0
United States	-3	0	-11	0	0	0	1	0	0	-2	-2	0	0	-1	-1	1	0	0	0	0
North America	-2	-2	-14	0	0	0	0	0	-1	-2	-1	1	-1	0	-1	2	0	0	0	0
Japan	-3	0	-1	0	0	0	0	0	-1	-7	0	1	0	0	-1	1	0	0	0	0
Other developed	-3	-1	-12	-5	-2	-1	0	-1	-2	-3	-2	-2	0	0	-1	1	0	0	0	0
China	7	1	-26	-5	2	0	0	-1	0	2	10	1	-2	-1	4	3	0	-1	0	-1
India	2	-3	-3	2	1	-21	-3	1	6	7	9	15	2	5	3	3	1	1	1	-1
Other Asia	-56	2	-75	-8	7	24	-2	7	34	31	8	24	2	3	5	-11	-4	0	0	0
Other South Asia	0	0	3	-8	2	-10	-2	-2	0	5	30	12	-1	-5	-13	-7	-5	0	0	-1
ASEAN	1	0	-5	-2	0	15	-2	3	-4	-1	-2	-3	4	0	-3	-2	7	-2	-1	0
Mexico	-1	-1	0	0	0	0	0	-7	0	-6	-7	-7	-1	-1	4	7	1	0	0	0
Andean	0	1	0	0	0	0	0	0	0	-1	-1	0	1	0	0	-1	-1	0	0	0
Mercosur	16	-4	23	7	0	-3	-1	7	1	-9	-4	-8	-3	-1	9	-4	-3	0	0	0
Rest of Latin America	-2	1	1	-4	1	-1	0	0	-1	-2	-6	-5	0	4	11	3	3	0	0	0
Central America	-2	0	-1	-1	-1	0	0	-2	-1	1	6	-1	-1	-2	3	9	1	0	0	-1
Caribbean	-5	0	0	9	2	-1	0	7	0	-6	-8	3	0	1	8	-3	5	0	0	-1
South Africa	-1	-2	-2	5	4	-2	0	-4	0	-15	-11	-25	-4	1	-2	-9	7	0	1	0
Sub-Saharan Africa	-13	2	50	-2	1	-2	1	2	2	-19	-7	-14	-1	-4	19	10	6	1	1	-1
South-African Development Community	-1	3	-2	2	1	-2	0	-5	0	-11	-9	-22	1	-6	-15	-5	6	0	0	0
Middle East and North Africa	-1	0	0	-1	-2	-2	0	-1	-1	-7	-18	-5	8	1	0	1	2	0	0	0
Central and Eastern Europe	0	0	0	0	0	0	1	0	0	-2	-4	1	0	0	0	1	0	0	0	0
Rest of World	0	0	0	0	0	0	0	0	-1	-1	-2	0	-1	0	0	0	-1	0	0	0

Source: GTAP simulations

Table A3 Initial share in total world sectoral output (per cent)

	CER	VFN	VOL	SGR	OCR	LVS	RES	DRY	OFD	TXT	WAP	LEA	NMM	P_C	MVH	ELE	MMN	SER	TRN	BFS
European Union	7	12	9	17	24	26	10	33	25	18	21	27	29	20	30	23	28	25	30	25
United States	7	6	18	20	22	21	12	23	26	19	22	8	26	20	30	20	27	33	38	35
North America	1	1	2	0	1	2	4	2	2	1	2	1	2	3	4	1	2	2	2	2
Japan	10	5	0	7	11	3	3	5	13	5	11	4	11	9	16	21	12	14	12	15
Other developed	1	2	1	2	2	3	5	4	2	1	1	1	2	2	2	1	3	3	2	3
China	15	28	11	1	7	11	12	1	6	21	15	27	9	9	4	8	10	5	3	3
India	11	6	24	8	3	2	2	6	1	4	1	2	1	3	1	0	2	1	1	1
Other Asia	5	4	1	1	2	2	1	1	2	6	3	3	3	5	3	8	4	2	2	2
Other South Asia	6	2	4	2	1	1	1	1	0	3	2	1	0	0	0	0	0	0	0	0
ASEAN	9	4	2	5	4	4	5	0	3	5	5	6	2	4	2	10	2	2	2	1
Mexico	1	2	0	4	3	4	3	2	4	3	3	4	2	2	2	2	2	2	1	1
Andean	1	2	1	2	2	2	3	2	2	1	2	2	1	2	1	0	0	1	1	1
Mercosur	3	1	14	5	3	4	2	3	4	2	2	4	2	3	2	1	2	2	2	3
Rest of Latin America	1	1	2	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	1
Central America	0	1	0	1	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0
Caribbean	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Africa	0	0	0	1	1	1	1	0	1	0	0	0	0	1	0	0	1	0	0	0
Sub-Saharan Africa	3	1	1	3	3	1	3	0	1	0	0	1	0	1	0	0	0	0	0	0
South-African Development Community	1	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Middle East and North Africa	6	13	3	9	3	4	17	4	2	4	5	4	3	10	1	1	1	3	2	3
Central and Eastern Europe	3	2	1	2	2	2	1	2	1	1	1	2	1	1	0	0	1	0	0	0
Rest of World	9	6	4	7	6	5	12	7	4	4	1	4	3	6	2	1	3	2	1	2

