**UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT**
**Geneva**

# SMOKE AND MIRRORS: MAKING SENSE OF THE WTO INDUSTRIAL TARIFF NEGOTIATIONS

## POLICY ISSUES IN INTERNATIONAL TRADE AND COMMODITIES
### Study Series No. 30

### 8. The impact of trade liberalization

**UNITED NATIONS**
**New York and Geneva, 2006**

that the impact of preference erosion can be ascertained. UNCTAD has modified the bilateral tariff data to better reflect existing preferences.

In this type of model, the results are driven by improvements in the terms of trade (e.g. export prices rising faster than import prices) and the efficiency effects of improvements in the allocation of resources between different activities. The results are based on a comparative static analysis, comparing a pre- and post-liberalization situation, without taking account of transition periods or adjustment costs, such as we discussed earlier. As we shall see, while the overall adjustments may be minor, the effects on specific sectors may be quite significant. We have no information that would allow us to take account of any social benefits or externalities – divergences between social costs and benefits (some of which are so-called non-trade concerns) that derive from current intervention in favour of the industrial sector. These factors need to be properly evaluated and taken into account in policy design in the context of any trade or sectoral policy changes resulting from the WTO negotiations or another process.

The quantitative analysis presented in the paper is also limited in that it is not able to take account of all distortions in production and trade. For example, SPS and TBT barriers appear to be of increasing importance, especially in the agricultural sector. Similarly, the paper is unable to address concerns about market entry, which is not always assured even when formal barriers are lifted. In some instances, large marketing companies have a dominant position in the trade of certain products and may capture some of the benefits that would otherwise be passed to producers in the developing countries. Furthermore, in the services sector, our estimates of impediments to trade may not necessarily reflect the actual situation.

# 8. THE IMPACT OF TRADE LIBERALIZATION

Trade negotiators obviously have a number of objectives in WTO negotiations and these have evolved to take greater account of broader economic and social objectives, as indicated by the Doha Declaration. Nevertheless, the immediate interest of negotiators is in trade flows. Changes in export revenues are a guide to the potential benefits from the negotiations. Although the main reason for exporting goods and services is to purchase imports, an increase in imports is commonly seen as a negative impact because it displaces domestic production. This is a problem if the displaced production is in politically sensitive sectors, by virtue of location, culture or dependence. A third concern is tariff revenues. Many Governments rely heavily on tariffs for government revenues, and the need to replace tariff revenue with alternative sources can be a costly burden for Governments with limited administrative capacity. A final concern is the labour market. A flood of imports may cause an increase in unemployment or a fall in the wage rate, with undesirable social and political consequences. For these reasons we assess each scenario in terms of export revenues, imports, government revenues, welfare, sectoral output and real wages.

## *Export revenues*

The estimated effects on export revenues from the implementation of the four scenarios outlined earlier are shown in terms of percentage increases in table 9. In general, the degree of ambition can be assessed by the global change in revenues, with more ambitious scenarios generating a greater change in revenues. However, this does not necessarily apply for individual sectors or countries. There are increases in exports in all regions in all partial liberalisation scenarios.[15] Under the less ambitious Simple

---

[15] There are also increases in global export revenues in all sectors, with the exception of the resources sector (coal, oil, gas and minerals).

**Table 9. Change in export revenue relative to base**

|  | Free trade | Hard | Soft | Simple |
|---|---|---|---|---|
|  | % | % | % | % |
| Andean Pact | 4.1 | 2.7 | 1.3 | 1.1 |
| Central America & Caribbean | 8.3 | 5.0 | 1.0 | 1.0 |
| Canada | 0.8 | 0.9 | 0.9 | 0.6 |
| Central and Eastern Europe | 5.6 | 4.5 | 3.2 | 3.4 |
| China | 9.8 | 10.0 | 7.7 | 5.5 |
| European Union 15 | 1.6 | 1.1 | 0.7 | 0.7 |
| Indonesia | 5.2 | 4.3 | 2.8 | 1.3 |
| India | 20.5 | 14.9 | 5.3 | 3.9 |
| Japan | 6.5 | 5.4 | 3.6 | 2.4 |
| Middle East | 2.9 | 2.2 | 0.9 | 1.0 |
| Mercosur | 15.0 | 9.6 | 4.4 | 3.7 |
| North Africa | 10.0 | 8.3 | 2.1 | 2.0 |
| Oceania | 4.7 | 3.6 | 2.9 | 1.5 |
| Other Western Europe | 1.8 | 1.8 | 1.5 | 1.4 |
| Rest of Asia | 8.9 | 7.5 | 4.9 | 3.7 |
| Rest of world | 6.4 | 5.3 | 3.7 | 3.1 |
| South Asia | 12.0 | 6.3 | 4.5 | 2.7 |
| South-East Asia | 3.3 | 2.1 | 0.9 | 0.5 |
| Sub-Saharan Africa | 4.8 | 2.5 | 0.8 | 0.9 |
| United States | 5.6 | 4.5 | 3.5 | 2.4 |
| South Africa | 5.7 | 4.3 | 2.1 | 1.2 |
| **World** | 4.4 | 3.5 | 2.2 | 1.7 |

*Source*: GTAP simulations.

scenario the change in global export revenues at world prices is $100 billion. Of this, the increase in developing country exports is $51 billion, and of this $35 billion is due to an expansion of Northern markets, while a further $17 billion is attributed to South-South trade.

The four scenarios generate changes in export revenues in proportion to their tariff reduction (see table 9), with the Soft and Simple scenarios delivering around a third of the export gains of free trade. This does not hold for all regions, of course, but depends on the distribution of cuts in protection and each region's competitiveness in supplying the goods to liberalized markets. Suppliers of temperate agricultural products (Oceania) and textiles (China, South Asia) are favoured.

*Imports*

Most countries contemplating liberalization are concerned about being flooded by imports (table 10). In fact, in our simulation results, imports tend to follow the pattern of exports, with a large increase in imports, as in China (6.8 per cent under the Simple scenario), being accompanied by an almost corresponding increase in exports (5.5 per cent). The change in imports equals the change in exports globally but not necessarily for each region, where the change in the balance of payments resulting from changes in the current account needs to be accommodated by corresponding changes in the capital account.

**Table 10. Change in imports relative to base**

| | Free trade | Hard | Soft | Simple |
|---|---|---|---|---|
| | % | % | % | % |
| Andean Pact | 5.0 | 2.8 | 0.8 | 0.5 |
| Central America & Caribbean | 11.1 | 6.0 | 0.7 | 0.8 |
| Canada | 0.1 | 0.5 | 0.8 | 0.4 |
| Central and Eastern Europe | 8.5 | 6.9 | 5.2 | 5.4 |
| China | 12.1 | 11.7 | 9.1 | 6.8 |
| European Union 15 | 0.6 | 0.5 | 0.4 | 0.4 |
| Indonesia | 5.6 | 4.4 | 2.8 | 1.1 |
| India | 29.2 | 20.9 | 6.4 | 4.6 |
| Japan | 6.5 | 6.6 | 5.6 | 4.1 |
| Middle East | 5.5 | 3.5 | 1.6 | 1.8 |
| Mercosur | 14.4 | 9.1 | 3.4 | 2.8 |
| North Africa | 18.2 | 13.2 | 2.7 | 2.4 |
| Oceania | 4.7 | 3.4 | 2.9 | 1.2 |
| Other Western Europe | 2.1 | 2.3 | 2.2 | 2.0 |
| Rest of Asia | 10.6 | 9.0 | 5.7 | 4.4 |
| Rest of world | 8.1 | 5.5 | 4.0 | 3.4 |
| South Asia | 15.6 | 7.4 | 4.6 | 2.4 |
| South-East Asia | 4.4 | 2.7 | 1.0 | 0.5 |
| Sub-Saharan Africa | 7.6 | 3.1 | 0.1 | 0.3 |
| United States | 2.5 | 2.4 | 2.0 | 1.2 |
| South Africa | 9.9 | 6.8 | 2.6 | 1.0 |
| **World** | 4.4 | 3.5 | 2.2 | 1.7 |

*Source*: GTAP simulations.

As expected, the changes in imports are all positive in the partial liberalization scenarios. Changes in import levels in the Andean countries, Central America and the Caribbean, and sub-Saharan Africa are quite moderate. However, China, Central and Eastern Europe, India and Japan show quite substantial increases in imports, which reflect the degree of liberalization in these regions. The largest increase in imports – nearly 30 per cent – would occur in India under the Free trade scenario.

As a broad generalization across all scenarios, subject to some exceptions, developing countries' imports will increase proportionately more than those of the developed countries and regions.

### Government revenues

Many developing countries are concerned that trade liberalization will have a significant adverse impact on government revenues because tariff revenues constitute a substantial contribution to public revenue. The importance of tariff revenues to government revenues is shown as the ratio of tariff revenue to government revenue in table 11.[16] Clearly, developing countries are

---

[16] These data, from the GTAP database, are broadly consistent with the World Bank data presented in Table 1. The GTAP data are based on tariff rates and trade flows and thus may be an overestimate because of smuggling, administrative problems in collection and various exemptions.

**Table 11. Initial revenues and change relative to base**

| | Initial government revenues $m | Initial tariff revenues $m | Ratio of tariff to total revenue | Free trade % | Hard % | Soft % | Simple % |
|---|---|---|---|---|---|---|---|
| Andean Pact | 32 738 | 5 024 | 0.15 | -86 | -41 | -7 | -6 |
| Central America & Caribbean | 48 424 | 15 367 | 0.32 | -86 | -42 | -5 | -4 |
| Canada | 125 694 | 4 332 | 0.03 | -57 | -50 | -47 | -30 |
| Central and Eastern Europe | 63 922 | 15 004 | 0.23 | -76 | -64 | -51 | -49 |
| China | 118 821 | 24 872 | 0.21 | -82 | -72 | -54 | -51 |
| European Union 15 | 1 479 046 | 27 858 | 0.02 | -57 | -50 | -47 | -29 |
| Indonesia | 14 619 | 2 666 | 0.18 | -80 | -31 | -7 | -8 |
| India | 50 341 | 11 936 | 0.24 | -87 | -58 | -13 | -12 |
| Japan | 407 959 | 21 679 | 0.05 | -61 | -59 | -59 | -50 |
| Middle East | 142 323 | 12 341 | 0.09 | -80 | -54 | -30 | -29 |
| Mercosur | 174 578 | 16 576 | 0.09 | -83 | -51 | -16 | -15 |
| North Africa | 27 693 | 10 020 | 0.36 | -84 | -55 | -15 | -11 |
| Oceania | 79 515 | 3 031 | 0.04 | -92 | -56 | -43 | -8 |
| Other Western Europe | 67 423 | 5 550 | 0.08 | -41 | -40 | -40 | -38 |
| Rest of Asia | 87 896 | 12 978 | 0.15 | -78 | -60 | -30 | -26 |
| Rest of world | 110 574 | 11 923 | 0.11 | -66 | -34 | -17 | -16 |
| South Asia | 10 532 | 3 887 | 0.37 | -84 | -26 | -5 | -7 |
| South-East Asia | 47 877 | 13 271 | 0.28 | -85 | -45 | -10 | -10 |
| Sub-Saharan Africa | 24 943 | 6 733 | 0.27 | -85 | -33 | -7 | -7 |
| United States | 1 201 779 | 20 866 | 0.02 | -83 | -74 | -70 | -40 |
| South Africa | 28 979 | 2 128 | 0.07 | -84 | -59 | -18 | -10 |
| **Total** | **4 345 675** | **248 043** | **0.06** | **-76** | **-55** | **-35** | **-27** |

*Source:* GTAP database and simulations.

much more dependent on this source. Country-level data would reveal even more extreme examples for individual countries, especially for small island developing States that are highly dependent on trade.

The free trade scenario implies that tariff revenues of $248 billion would be reduced by 76 per cent. Revenues are maintained from tariffs outside the non-agricultural sector. The simulation results indicate that implementation of the Simple scenario would result in an estimated 27 per cent decline in global tariff revenues from $248 billion (see table 11). The declines vary significantly across regions, from next to nothing in Central America and the Caribbean to around 50 per cent in China, Central and Eastern Europe and Japan. On this criterion, both the Soft and Simple scenarios would be preferred by developing countries to the more ambitious alternatives. For developed countries the revenue losses under the Hard and Soft scenarios are similar, whereas the Simple scenario results in fewer revenue losses.

### Welfare

An overall impact of the gains and losses from liberalization can be captured as welfare, shown in table 12 for each region. Changes in welfare at a national level emanate essentially from two sources: allocative efficiency gains and terms-of-trade effects. The first reflects the benefits of making better use of resources – in effect, getting something for nothing. Terms-of-trade effects refer to gains and losses due to changes in prices of imports and exports. These are important nationally, but sum to zero globally because an increase in the price of exports means that importers have to pay more. Under the Simple scenario, the global gains sum to $28 billion, with $9.4 billion accruing to developing

countries. A large part of the remaining gains accrues to Japan. Amongst the losing regions, Canada suffers as the value of its preferential access to the United States is eroded, while sub-Saharan Africa experiences a decline in terms of trade driven by falls in the export prices of services and primary and processed agricultural products, areas that are outside the NAMA negotiations. Sub-Saharan Africa, however, benefits from more ambitious liberalization as the allocative efficiency gains start to outweigh the terms-of-trade losses.

Free trade produces a scattering of winners and losers. Under this scenario the major beneficiaries are Japan, which out-competes the United States and the European Union in the services area; China, which

**Table 12. Change in welfare relative to base**

|  | Free trade % | Hard % | Soft % | Simple % |
| --- | --- | --- | --- | --- |
| Andean Pact | 0.05 | 0.14 | 0.13 | 0.07 |
| Central America & Caribbean | 0.08 | 0.16 | 0.18 | 0.20 |
| Canada | -0.16 | -0.09 | -0.06 | -0.04 |
| Central and Eastern Europe | -0.18 | -0.23 | -0.20 | -0.12 |
| China | 0.30 | 0.31 | 0.36 | 0.02 |
| European Union 15 | 0.05 | 0.04 | 0.00 | 0.04 |
| Indonesia | 0.27 | 0.37 | 0.42 | 0.13 |
| India | 0.20 | 0.34 | 0.34 | 0.15 |
| Japan | 0.47 | 0.41 | 0.33 | 0.31 |
| Middle East | 0.08 | 0.10 | 0.06 | 0.05 |
| Mercosur | 0.01 | 0.05 | 0.08 | 0.06 |
| North Africa | 0.25 | 0.33 | 0.19 | 0.17 |
| Oceania | 0.09 | 0.13 | 0.14 | 0.16 |
| Other Western Europe | 0.41 | 0.42 | 0.33 | 0.28 |
| Rest of Asia | 1.02 | 0.80 | 0.62 | 0.41 |
| Rest of world | 0.21 | 0.24 | 0.26 | 0.21 |
| South Asia | 0.46 | 0.52 | 0.60 | 0.21 |
| South-East Asia | 0.44 | 0.57 | 0.55 | 0.24 |
| Sub-Saharan Africa | -0.08 | 0.09 | -0.08 | -0.03 |
| United States | 0.00 | 0.00 | -0.02 | 0.01 |
| South Africa | 0.25 | 0.16 | 0.18 | 0.09 |
| World | 0.15 | 0.14 | 0.11 | 0.10 |
| **Total in $m** | **42 417** | **40 961** | **31 947** | **27 665** |

*Source:* GTAP simulations. Welfare is expressed as a percentage of initial GDP.

benefits from allocative efficiency gains; and the rest of Asia. For Japan, these gains reflect terms-of-trade effects, with rising export prices for electronics, motor vehicles, other metals and services exports. Sub-Saharan Africa loses in this scenario because of a deterioration in its terms of trade, particularly falling export prices of services. Canada and Central and Eastern Europe have preferential access to large markets and MFN liberalization erodes their preferences, resulting in negative welfare impacts.

The $9.4 billion in welfare gains to developing countries in the Simple scenario represents a small but not insignificant addition of 0.10 per cent to GDP each year. After compound growth for ten years the additional gains amount to $96 billion, worth $60 billion in today's terms.[17] This may be seen as a useful if modest contribution to poverty reduction, although no account is taken of the adjustment process or any externalities from current intervention.

### Sectoral output

Policy makers concerned with structural adjustment will wish to take account of potential changes in the value of output in specific sectors, for which the simulation results under the various scenarios are shown by sector and region in Appendix tables A6–A9. Global output, which is limited by constant endowment of the factors land, labour and capital, is valued in the initial database at $54,035 billion, including taxes and subsidies (see table A5 for a breakdown of initial values). In absolute terms, the largest falls over the partial liberalization scenarios are in iron and steel ($2–4 billion) and petroleum and coal products ($5 billion). Among the more significant increases is that in the output of services ($7–9 billion). If the tariff cuts are large enough to significantly reduce applied rates in developing countries, as in the free trade scenario, there will be a big shift out of motor vehicles into services. The most significant reductions are estimated to occur in China ($2–3 billion).

Perhaps of greater interest are the regional changes in sectoral output. In the Simple scenario, the largest fall in output is in excess of 20 per cent in the leather and petroleum and coal products sectors in Japan. The rest of the world (including the Russian Federation and Central Asia) and the rest of South Asia (i.e. excluding India) are projected to suffer a decline in the motor vehicles sector of 12 and 13 per cent, respectively. For the rest of South Asia (i.e. other than India), this erosion of output rises to 55 per cent under the Hard scenario, but falls back a little to 48 per cent under the free trade scenario, where reductions are spread more evenly. Indeed, the percentage cuts do not increase regularly across scenarios as the level of ambition rises, because the cuts in applied tariffs take effect unevenly, depending on the gap between bound and applied rates and the inclusion or exclusion of specific sectors under different scenarios.

On the plus side, the greatest changes in output following the Simple scenario are around 30 per cent in Indonesian leather, and 25 and 13 per cent in the rest of Asia (mainly the Republic of Korea and Taiwan Province of China) in lumber and petroleum and coal products, respectively. These changes are similar under a free trade scenario. In absolute terms, the largest positive effect is felt in the Japanese motor vehicles and chemicals, rubber and plastics sectors. The sector needing to make the most adjustment is the Japanese petroleum and coal products. This sector has high duties on these products, imported from the Middle East and the rest of Asia.

---

[17]  At a 5 per cent discount rate, $59 billion = $96 billion /(1.05)^10.

## Table 13. Change in real unskilled wage rates relative to base

| | Free trade % | Hard % | Soft % | Simple % |
|---|---|---|---|---|
| Andean Pact | 1.9 | 0.5 | 0.2 | 0.1 |
| Central America & Caribbean | 2.7 | 1.5 | 0.4 | 0.4 |
| Canada | 0.4 | 0.3 | 0.3 | 0.2 |
| Central and Eastern Europe | 3.2 | 2.8 | 2.1 | 2.2 |
| China | 2.5 | 2.7 | 2.1 | 1.6 |
| European Union 15 | 0.3 | 0.3 | 0.2 | 0.2 |
| Indonesia | 1.3 | 1.3 | 1.1 | 0.5 |
| India | 2.3 | 2.1 | 0.7 | 0.5 |
| Japan | 1.3 | 1.3 | 1.2 | 1.0 |
| Middle East | 1.5 | 1.1 | 0.6 | 0.6 |
| Mercosur | 0.9 | 0.3 | 0.1 | 0.1 |
| North Africa | 3.0 | 2.2 | 0.6 | 0.5 |
| Oceania | 0.8 | 0.6 | 0.5 | 0.3 |
| Other Western Europe | 1.5 | 1.6 | 1.5 | 1.4 |
| Rest of Asia | 2.6 | 2.2 | 1.4 | 1.1 |
| Rest of world | 0.9 | 0.6 | 0.5 | 0.3 |
| South Asia | 2.9 | 1.5 | 1.0 | 0.6 |
| South-East Asia | 2.9 | 2.0 | 0.8 | 0.5 |
| Sub-Saharan Africa | 2.3 | 1.0 | 0.1 | 0.1 |
| United States | 0.3 | 0.2 | 0.1 | 0.1 |
| South Africa | 1.7 | 1.1 | 0.5 | 0.3 |

*Source:* GTAP simulations.

Among developing countries, the sectors likely to suffer most dislocation following the Simple scenario are motor vehicles, chemicals, rubber and plastics and other manufactures in China, amounting to $13 billion in forgone output. However, of these sectors, only the motor vehicles sector represents a significant percentage (16 per cent). In the sub-Saharan African region the changes are modest under the Simple scenario, not exceeding 4 per cent in any sector. Under the Hard scenario the percentage changes would rise to -22 per cent for leather and -8 per cent for textiles and apparel. The largest dollar value falls are in processed agriculture and petroleum and coal products. Almost all the gains are expected to be in services and transport equipment other than motor vehicles.

### Real wages

One way of looking at the potential impact of the trade negotiations on the labour market is through estimated changes in real wages. In the standard GTAP model closure, labour is assumed to be fully employed, with costless relocation between sectors. This is obviously an abstraction, but the changes in wage rates give an indication of the structural changes that are necessary in order to maintain the existing level of employment. This is useful for comparison between sectors, if not a measure of the absolute costs.

Generally, trade liberalization has the effect of increasing wages for both unskilled workers (shown in table 13) and skilled workers. The returns to capital also tend to

move with wage rates, reflecting the assumed substitutability of factors in production. The wage rates reflect the demand for the good produced by these factors. The results suggest that there is a relative fall in demand for good and services produced by unskilled labour in the developed countries, notably the United States (driven by estimated changes in protection in the textiles and clothing sector), and the European Union (motor vehicles and apparel). Nonetheless, real wages increase rather than fall in these regions, even though other countries gain more. Demand for unskilled labour in the leather, textile and apparel sectors in the United States would fall

by an estimated 5 per cent, 2 per cent and 4 per cent, respectively, even under the moderate Simple scenario, which illustrates why liberalization is a political problem for some countries. However, in the United States there is an estimated increase in demand in primary and processed agriculture and electronics. On the other hand, we estimate that wage rates would increase in Japan, where labour costs in the motor vehicles sector are low compared with the United States and the European Union. This sector is estimated to expand by 3 per cent in Japan, much more than in its main competitors.

### Table 14. Impact of flexible labour force, Simple scenario

|  | Use of unskilled labour with flexible labour force % | Welfare with fixed labour force $m | Welfare with flexible labour force $m |
|---|---|---|---|
| Andean Pact | 0.27 | 201 | 449 |
| Central America & Caribbean | 0.51 | 1 027 | 1 650 |
| Canada | 0.00 | -229 | -206 |
| Central and Eastern Europe | 3.27 | -431 | 3 734 |
| China | 2.16 | 246 | 8 431 |
| European Union 15 | 0.00 | 3 096 | 2 400 |
| Indonesia | 0.41 | 259 | 447 |
| India | 0.46 | 641 | 1 171 |
| Japan | 0.00 | 12 948 | 12 822 |
| Middle East | 0.91 | 300 | 2 506 |
| Mercosur | 0.21 | 742 | 1627 |
| North Africa | 0.67 | 355 | 1 043 |
| Oceania | 0.00 | 777 | 819 |
| Other Western Europe | 0.00 | 1 118 | 1 194 |
| Rest of Asia | 1.95 | 2 963 | 7 879 |
| Rest of world | 0.52 | 1 736 | 3 747 |
| South Asia | 0.00 | 250 | 209 |
| South-East Asia | 0.77 | 1 045 | 1 912 |
| Sub-Saharan Africa | 0.15 | -62 | 94 |
| United States | 0.00 | 558 | 293 |
| South Africa | 0.54 | 126 | 447 |
| **Total** |  | **27 665** | **52 655** |

*Source:* GTAP simulations. The Simple scenario with flexible labour force assumes endogenous unskilled labour and fixed real wages in developing countries. Use of unskilled labour does not change in the standard Simple scenario.

In developing countries the demand for unskilled labour increases significantly in many developing countries, owing to increased demand for unskilled labour-intensive products such as textiles. This has implications for poverty reduction, it being assumed that the poor are predominantly unskilled and in agriculture.

To assess the impact of trade liberalization on employment in developing countries, we re-estimated the Simple scenario, holding the real wage of unskilled labour fixed (this allows for the movement in nominal wages) and allowing for adjustment in the level of employment in developing countries. The underlying assumption here is that there exists a pool of unspecified size of unemployed workers that can come into the workforce if demand for their services increases. Alternatively, liberalization might lower the demand for unskilled workers in some countries and overall employment would fall. In many countries, wages are fixed, at least downwards, so that in reality the adjustment occurs in quantity rather than price.[18] The results indicate that in these countries up to 3 per cent more labour would be employed, and, as a result, welfare increases. In the cases of Central and Eastern

**Table 15. Use of unskilled labour in selected sectors, Simple scenario**

|  | Motor vehicles % | Petroleum and coal products % | Leather % | Textiles % | Wearing apparel % |
|---|---|---|---|---|---|
| Andean Pact | -1.34 | 0.44 | 0.02 | 0.31 | 0.48 |
| Central America & Caribbean | -0.37 | 0.94 | 1.52 | 2.62 | 3.08 |
| Canada | 0.06 | -0.09 | -2.18 | -1.27 | -2.24 |
| Central and Eastern Europe | 3.99 | 3.15 | 4.20 | 1.84 | 3.29 |
| China | -2.95 | 2.21 | 5.09 | 2.32 | 4.40 |
| European Union 15 | 0.26 | 0.22 | 0.35 | -0.28 | -0.69 |
| Indonesia | 0.41 | 1.16 | 5.94 | 0.52 | 0.76 |
| India | 0.76 | 1.58 | 2.32 | 1.04 | 2.17 |
| Japan | 0.80 | -7.64 | -7.27 | 1.01 | -0.85 |
| Middle East | 0.95 | 2.26 | -1.30 | 0.20 | -0.43 |
| Mercosur | 0.27 | 0.26 | -0.05 | 0.16 | 0.17 |
| North Africa | -1.59 | 1.64 | 0.60 | 0.39 | 0.41 |
| Oceania | -0.69 | 0.01 | -0.75 | -0.96 | -0.19 |
| Other Western Europe | 0.06 | -0.45 | 0.00 | -0.23 | -0.87 |
| Rest of Asia | 2.05 | 6.08 | 3.54 | 3.16 | 2.36 |
| Rest of world | -3.88 | 0.92 | 0.00 | 0.97 | 0.66 |
| South Asia | -3.76 | 0.97 | -0.85 | 0.44 | 1.50 |
| South-East Asia | 0.50 | 1.73 | 0.09 | 0.88 | 1.41 |
| Sub-Saharan Africa | 0.15 | 0.51 | -0.36 | -0.30 | 0.08 |
| United States | -0.02 | -0.01 | -1.06 | -0.55 | -1.03 |
| South Africa | 0.52 | 0.59 | -1.92 | 0.23 | 1.19 |

*Source:* GTAP simulations. Simple scenario with flexible unskilled labour force.

---

[18] This is simulated in GTAP by making the quantity of unskilled labour endogenous and fixing the real factor price of the endowment (i.e. real wages). An example of modelling employment within GTAP is given by Kurzweil (2002).

Europe and sub-Saharan Africa, the welfare results are reversed. The change in global welfare is almost doubled, and most of the gains from increased employment are captured locally. Welfare gains are diminished in the major developed countries, which are assumed not to be able to expand their labour use.

These results illustrate that the use of endowments such as labour and capital has a far greater impact on welfare than the allocative efficiency gains or terms-of-trade effects. While the economy-wide effects of liberalization may be to increase demand for labour, these effects are not uniform across sectors. Changes in unskilled labour use in the most sensitive sectors are shown for each region in table 15. The largest negative changes are in Japan (minus 7 per cent). In general, the labour use changes are moderate, but this reflects the level of aggregation of both countries and sectors. A finer disaggregation would reveal greater changes, both positive and negative.

## 9. IMPLICATIONS AND CONCLUSIONS

Given these estimated potential impacts on exports, imports, government revenues, output, real wages and labour use, what can be said about the best course of action for developing countries? Any generalized policy strategy may be rather difficult to establish since developing countries are not entirely homogeneous: they are all at different stages of development and have different resource endowments. Moreover, individual Governments will have different ideas about the social value of trade and sectoral policy interventions. Finally, policy strategies are difficult to prescribe because liberalization has positive and negative effects, in both the long and short run, and it is not clear what weight policy makers attach to these various effects. The literature suggests that there may be negative

effects in the short run associated with transitional adjustment costs and benefits in the long run following improved allocation of resources. While these adjustment costs may be moderate in the aggregate, our analysis shows that there are large variations in output across regions and sectors.

The potentially important initial costs of adjustment, especially in sectors with political sensitivity, may well be perceived as great enough to deter many policy makers from rushing to follow the liberalization path. Experience of national reforms also suggests that economic and social costs may be unpredictable and some caution seems to be indicated.

Most of the discussion about costs of adjustment is concerned with unemployed labour rather than land or capital, and so policies enhancing the mobility of labour will lower the costs of adjustment. Moving labour out of some sectors has proved difficult because of the absence of alternative industries in the proximity or non-transferability of skills. Fisheries are one example, where coastal towns are dependent on one industry and seafaring skills are not easily transferred to land. However, in developing countries large sectors of the population are employed in agriculture, and a transfer of labour into the unskilled textiles sector in the same district may be more manageable, at least in some cases. For this reason, liberalization of the textiles and apparel sectors is especially important for many developing countries. For those developing countries with an educated workforce, services provide an important growth sector, as India has shown in the provision of software and various back-office services. The regional differences in the costs of services tend to be greater than the differential in the cost of goods, and so there are potentially greater gains from liberalizing this sector. To reduce adjustment costs and other risks, an obvious approach is to phase in adjustment so that capital is replaced at