CHAPTER 8

IMPROVING MARKET ACCESS IN AGRICULTURE FOR THE AFRICAN LEAST DEVELOPED COUNTRIES

Deepening, widening, broadening and strengthening trade preferences

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INTRODUCTION

African least developed countries (ALDCs) have enjoyed preferential treatment in exporting their agricultural products to developed countries. Reducing agricultural trade barriers at the multilateral level may erode the benefits of these preferences. Therefore, any analysis on the potential impact of the Doha outcome on the ALDCs needs to consider the possibility and the extent of erosion of agricultural trade preferences.

After having implemented unilateral trade reforms and experienced multilateral trade liberalization resulting from the Uruguay Round, many LDCs are not keen on being active players in the Doha Round. Instead, they ask for further preferential treatment from developed and advanced developing countries, and exemptions from reforming their own policies. Indeed, these concerns have been included in the negotiation agenda. For instance, in the recent July Package of the WTO agricultural trade negotiations (WTO 2004), it is stipulated that "developed Members, and developing country Members in a position to do so, should provide duty-free and quota-free market access for products originating from least developed countries".

There have been ongoing debates on the desirability and feasibility of adopting this proposal. Some worry about the inability of preferences in promoting agriculture exports and economic development in the LDCs and doubt the value of preferences as an effective measure of special and differential treatment. Poor export performance of the LDCs has often been cited in supporting this argument. These worries are compounded by the fear that the preferential approach may slow down

the multilateral liberalization process and compromise or delay potential gains from a freer multilateral trading system. Others point out that developing countries in general could gain more from market access reforms based on the 'Most Favored Nation' (MFN) approach and that the erosion of preferences (due to MFN liberalization) does not appear to be a big issue if substantial MFN reforms are conducted multilaterally. Still others argue that the LDCs do not necessarily gain from multilateral trade reforms, that the existing preferences are vital to their interests, and that any enhancement of such preferences would help mitigate any adverse effects from multilateral reforms. Lastly, many have noticed that various conditions, clauses and rules attached to existing preference programs may have hindered recipient countries from taking full advantage of these programs and therefore preferences should not be held responsible for the poor export performance of the LDCs. Instead of giving up on preferences altogether, some argue that efforts should be made to improve the rules associated with the preference programs to make them more effective.

Taking the July Package text as the departure point, this chapter examines empirically the value of existing preference programs in agriculture to the ALDCs and investigates the merits of enhancing these programs in the current negotiations. Specifically, Section "*The debate on trade preferences: a survey*" of the paper surveys and synthesizes several recent studies on the utilization of agricultural trade preferences for the purposes of gauging the perceived value of preferences to the recipient countries. Having concluded that preferences have been utilized to a great extent, the possibility and the extent of preference erosions in the presence of further multilateral trade liberalization are then analysed. Based on these, Section "*How can market access for the ALDCS be improved through trade preferences?*" argues that there is indeed a need for improving market access in agriculture for the ALDCs through improving and strengthening trade preferences. The July Package text is interpreted as a call for deepening, widening and broadening agricultural trade preferences targeting the LDCs, including the African ones. Further, strengthening preferences is recommended as an integrated part of the proposal. The feasibility of this proposal is evaluated against the current market access barriers facing the LDCs in the preference-granting countries. Section "*A numerical evaluation of deepening, widening and broadening trade preferences*" uses a general equilibrium model to evaluate numerically the extent of possible preference erosion and to illustrate the likely consequences of adopting the proposal on improving agricultural market access for the ALDCs in the Doha Round. The last section provides conclusions and final remarks.

THE DEBATE ON TRADE PREFERENCES: A SURVEY

Existing preference programs were often established for the purposes of promoting exports from the recipient countries. By stimulating exports from these countries, it has been hoped that economic growth in the recipient country would follow. In principle, this kind of measure compensates producers in recipient countries for their high-cost production by creating a wedge between the preferential barriers and the

corresponding MFN barriers imposed on exports from countries not enjoying such preferences, which is named 'preference margin'. The magnitude of the benefits obtainable from such preferences relies on the size of the preference margin and the distribution of the associated rents.

The debate on preferences not only concerns the associated short-term commercial value but also on their long-run implications concerning export-led economic growth. Moreover, as this favourable treatment as measured by the preference margin is not meant to be constant and permanent – the reference MFN trade barriers in agriculture have been reduced following the Uruguay Round and are expected to fall further as an outcome of the Doha Round[2] – the wisdom of lobbying for this intrinsically temporary favour has also been questioned.

Have preferences stimulated trade and economic development in the LDCs?

Judging from the poor export and general economic performance of the LDCs – whose export share in total world trade has actually declined since the inception of preference programs – it seems that preferences have not realized their declared purposes. However, it would be difficult to pinpoint the causes of the poor performance solely on trade preferences and simply to declare the demise of such programs. Any empirical analysis would have to establish a counterfactual scenario in which these economies had faced the MFN trade barriers and then compare this hypothetical scenario with reality. But to establish such a scenario is difficult, if not impossible. Indeed, much of the debate remains theoretical and speculative[3].

Inama (2004) observed under-utilization of several trade preference programs (covering both agriculture and non-agriculture products) by the so-called QUAD countries (USA, Canada, the EU and Japan). The study argues that the value and effectiveness of the preferences available to LDCs' exports are discounted by the observed low utilization rates. It concludes that in order to improve the utilization of existing preferences programs, in addition to expanding product coverage of such programs (especially those of the US and Japan), it is important to change the attached rules of origin to make it less burdensome for the LDCs to comply with such rules[4].

Unlike the Inama study, a recent OECD study (2004) focuses exclusively on the utilization of agricultural preferences granted by the EU and the US. The distinct feature of the study is that it takes into account the fact that exports from beneficiary countries may be eligible for multiple preference programs (i.e. multiple eligibility). Indeed, by taking this into consideration, contrary to other studies, preference utilization rates are actually quite high for both the EU and the US preference programs. For the EU programs, the overall utilization rate exceeded 89% in 2002, and half of the eligible imports that did not use preferences entered into the EU by mostly duty-free quotas and tariff suspensions. For the US programs, the utilization rate was 88% in 2002. Some of the eligible exports entered the US market under MFN rates due to rules of origin and compliance costs, whereas other eligible exports opted for the available low MFN rates.

While drawing the conclusion that the US and EU agricultural preference programs have actually been utilized to a great extent, the OECD study also points out that in comparison to the substantial trade flows under the EU programs, trade volumes under the US programs were quite small, especially those from the African countries. It suggests that the issue of low export volumes is not so much associated with the utilization of existing programs, but rather more related to the limited product coverage of such programs and to the difficulties in meeting safety and sanitary standards attached to the programs. It also notes that rules of origin are probably not a huge issue for agricultural products, as compared to the more processed products.

The issue of low export volumes under the US programs has also been examined by Wainio and Gehlhar (2004). Through detailed analysis of a dataset obtained from the US International Trade Commission, they found that many products important to the LDCs are not covered by any US preference program. Further, the MFN tariff rates for many products covered by the preference programs are quite low, thereby making the preference margins very small. Although the second observation leaves not much room for the LDCs to gain special advantages at present, the first does imply that widening product coverage may help stimulate exports from the LDCs in the future.

In summary, by taking note of the multiple eligibility phenomenon, it appears that agricultural trade preferences have indeed been utilized, implying that there are commercial values derivable from these programs. The main problem associated with these programs is the observed low export volumes[5], which is partially related to the limited product coverage of existing preference programs. Of course, the domestic constraints in the recipient countries are also to blame. Therefore, it appears that improving trade preferences by enlarging product coverage of such programs, and by asking more countries to grant such preferences, has the possibility of expanding exports from the recipient countries. In addition, simplifying rules, making the preference more stable and creating an enabling environment for investment can also go a long way towards promoting exports from the recipient countries.

Is enhancement of existing preference programs necessary? Preference erosion and multilateral liberalization

In addition to the apparent usefulness of preferences to the recipient countries, the case for enhancing agricultural trade preferences can be further argued for by analysing the issue of preference erosion in the presence of multilateral liberalization.

Is preference erosion a legitimate concern? How large would the negative effect associated with preference erosion be? In order to answer these questions, it is necessary first to discuss the basic mechanism of preference erosion before looking at the evidence. The ALDCs typically receive more favourable market access treatment in their traditional export markets than other developing countries. MFN reforms by preference-granting countries or multilateral MFN reforms erode these

preferences through two channels. By definition, MFN trade liberalization reduces preference margins, thereby eroding the advantages enjoyed by the ALDCs over their competitors. Moreover, liberalization actions by the preference-granting countries will likely lower their high domestic prices and further hurt the high-cost exporters from the preference-receiving countries[6,7].

Several recent studies have discussed the impact of multilateral liberalization or MFN liberalization by individual preference-granting countries on preference-receiving countries.

Wainio and Gibson (2004) point out that the exact impact of MFN tariff cuts by the US on countries receiving its non-reciprocal preference programs depends on the scope of the preferential treatment granted, the size of preference margins, and the depth of the MFN tariff cuts. Their results show that for countries highly dependent on preferences, the negative effects of preference erosion outweigh the positive effects of MFN tariff liberalization, whereas for countries that are not as dependent on preferences, MFN tariff cuts by the US bring about positive effects, and the larger the MFN cuts, the higher the benefits as measured in increased exports. Overall, the beneficiary countries of the US preference programs would gain from MFN tariff liberalization. The study does not provide a breakdown of the effects for individual African LDCs or for these countries as a group. Therefore, it is unclear if they would be better or worse off from the MFN liberalization. Nevertheless, it does confirm that preference erosion would be an issue for those who are dependent on preferences.

A slightly later study by Wainio and Gehlhar (2004) provides a detailed description of US non-reciprocal preference programs, covering eligible products and countries, margins of the preferences (as compared to the MFN rates), products excluded from the preferences and the applicable MFN rates, and the export patterns of the beneficiary countries in the US market. Based on this detailed data analysis, the study examines whether beneficiaries of US non-reciprocal trade preference programs gain more from cutting MFN rates on products excluded from these programs or lose more from the erosion of the preferences that they do enjoy. They conclude that developing countries as a whole would gain market shares in the US market from substantial MFN tariff liberalization, and that it is counterproductive for these countries as a group to oppose MFN liberalization. In drawing this conclusion, they emphasize the potential gains from liberalizing those products that are not included in the preference programs. However, their results also show that there would be only very minor export expansions in the US market for the LDCs (Tables 7-9 in Wainio and Gehlhar 2004) and their share in total US imports would drop after MFN reforms, therefore confirming the likely vulnerable position of the LDCs in the upcoming multilateral trade liberalization.

Unlike the US preferences, which have incomplete coverage for agriculture and food products, the EU preferences granted to the LDCs provide broader product coverage and have recently been enhanced with the adoption of the EBA initiative, a move granting full duty- and quota-free market access to all the LDCs. Yu and Jensen (2005) assess the impact of the EBA initiative on the ALDCs and show that further multilateral trade liberalizations may erode the EBA preferences. Due to its limited improvement (in terms of product coverage) from previous preferences

programs, welfare impacts of the EBA on the ALDCs are shown to be small. Moreover, these small gains are likely to disappear if the EU conducts MFN trade-policy reforms, resulting in an actually worse-off situation for the ALDCs. Extending the analysis to a multilateral trade liberalization scenario reinforces the above results that the LDCs may well lose due to preference erosion and higher world-market prices for their imports. These results are echoed in Bureau et al. (2004). They find that the implementation of the 'Harbinson proposal' would lead to a slight welfare gain (0.3%) for the poorest countries. However, the gain is not evenly spread – Sub-Saharan African countries as a whole would experience a slight loss (0.1%), due to preference erosion and higher costs for imported food.

Because of the differences in the EU and US preference programs and the narrower focus on the ALDCs by the Yu and Jensen study, the above-cited studies reach different policy implications. While the Wainio and Gehlhar study illustrates that MFN reforms would lead to more gains in the US market to developing countries as a whole and that multilateral liberalization is generally a better option for developing countries, the Yu and Jensen study concludes that the ALDCs may well lose from this process. However, it appears from the results of the Wainio and Gehlhar study that the LDCs' share in the US import market would decline following the MFN reform, a point that is consistent with Yu and Jensen. The Wainio and Gibson study provides indirect support to this point as well by concluding that countries highly dependent on trade preferences may lose from preference erosion. Therefore, there seems to be some agreement on the LDCs' vulnerability in coping with MFN market access reforms conducted by preference-granting countries.

HOW CAN MARKET ACCESS FOR THE ALDCs BE IMPROVED THROUGH TRADE PREFERENCES?

As the evidence gathered above suggests that agricultural trade preferences have been widely used and that preferences erosion is a legitimate concern from the perspective of the ALDCs (if not for developing countries as a whole), the next logical question to ask is how the preferential treatment – as part of the special and different treatment stipulated in the Doha Development Agenda and the July Package – can be improved.

Deepening, widening, broadening and strengthening agricultural trade preferences[8]

First, following the July Package text, developed countries can 'deepen' their preference programs by granting the ALDCs duty and quota free market access to all agricultural products that are covered in existing programs. Second, developed countries can 'widen' the coverage of their preference programs by extending the duty and quota free access to those agricultural products that have not been covered in existing programs. These two types of actions essentially imply EBA-style preference programs by all developed countries to the ALDCs. Third, preferential market access for ALDC exports can be 'broadened' to include advanced

developing countries in the group of preference-granting countries. Lastly, preference-granting countries can 'strengthen' existing preferences programs and new preference initiatives by making them permanent and unconditional. One possibility is to develop a set of WTO rules that would be applied to all preferential programs targeting the LDCs. Among the new rules, there should be simpler rules of origin and minimum administrative costs to the exporters. There should be no places in the rules for any eligibility conditions (except the one for being a LDC) that would exclude certain LDCs from the program and safeguard clauses that may discourage the recipient countries from investment and from gaining substantial market shares.

Having proposed the above measures to improve market access for the ALDCs, the next question to explore is whether there is scope for implementing the proposal, given the current state of existing preferences programs. The answer here is an emphatic yes. Broadening preferences by including advanced developing countries is possible as these countries generally have not yet provided the LDCs extensive and substantial trade preferences. Strengthening existing trade preferences is also feasible as there are many problems associated with individual programs that limit their effectiveness in promoting exports from the recipient countries. The possibility of deepening and widening preferences granted by developed countries, however, deserves some elaboration.

Existing preference programs of the EU, the US and Japan, and scopes for further improvement

In the case of the EU, there seems to be limited room for improving its preference programs because of the recently adopted EBA initiative. Upon fully implementing the EBA (including the phasing out of the transitory measures for sugar, banana and rice), the EU will be in a good position to argue for EBA-style preference from all developed countries and advanced developing countries[9].

The cases of the US and Japan are quite different from that of the EU. There, deepening and widening preferences for the ALDCs will require meaningful actions. In the case of the US, this requires expanding the coverage of the existing programs to currently excluded products. For the Japanese programs, this implies both expanding the product coverage and deepening the preference margins for the covered products.

The ALDCs receive preferences from the US through the GSP program for the LDCs, which is typically more favourable (duty-free access to covered exports) as compared to that for the non-LDC countries. Many ALDCs have also become eligible for the African Growth and Opportunity Act (AGOA). Data from the USITC data web[10] show that out of around 1800 US tariff lines, about 400 MFN tariff lines are duty-free. Among the remaining tariff lines, about 1100 lines are duty-free for the LDCs through the US preference programs. However, these preferences only lower the simple average tariffs faced by the LDCs marginally (from the overall simple average of 9.7% to the simple average of 5.6% for the GSP-LDC countries). This is because the dutiable tariff lines not covered in the

preference programs generally have higher tariffs than those lines covered in the preference programs. Therefore, there is scope for extending those preferences to the dutiable lines that are not covered in the current US preference programs.

Like the US, Japan grants preferences to the LDCs through the GSP program[11]. Before 2003, this program granted preferences to around 300 tariff lines (out of around 2000 lines) for the LDCs, reducing the average duty for the LDCs from 15.6% to 14.2%. For those lines that are not covered by the GSP, there are around 400 duty-free lines and more than 1300 dutiable lines. Those uncovered dutiable lines generally have higher tariff rates. Unlike the US GSP program, the Japanese GSP programs did not grant duty-free access for the covered products and the average tariff rate for covered products were 9.8% for the LDCs, only slightly lower than the average preferential rate for non-LDC GSP countries. Since 2003, Japan expanded the GSP product coverage for the LDCs by adding around 200 products or about 10% of total tariff lines. So, it seems that Japan would have to make extensive concessions to the LDCs in order for them to enjoy universal duty and quota free access to its market.

In addition, there is also ample room for strengthening these preferences. The chapter by Blandford provides a long list of difficulties associated with the implementation of existing preferences, ranging from eligibility, product coverage, rules of origin, certainty of commitments, to the number of schemes.

Take the recent EBA initiative as an example. The safeguard measures specified in the GSP of the EU are largely retained in the EBA, with some amendments. Most notable among the amendments is the addition of the situation of 'massive imports into the EU market' as a trigger for withdrawing the preferences. With regard to the three sensitive products (sugar, bananas and rice), the EU is allowed to suspend the preferences entirely if imports cause serious disruptions to the EU's mechanisms that regulate these products[12]. In addition, the rules of origin specified in the GSP also apply to the EBA initiative. Likewise, the US and Japanese GSP program also contains various preconditions and clauses. According to the USITC data web (www.usitc.gov), the preferences offered through the AGOA are meant for all 48 Sub-Saharan African countries but until recently only 37 countries from this region have gained eligibility. Likewise, only 41 LDCs are deemed eligible for its GSP-LDC preferences. The Japanese GSP program also contains safeguard clauses and there is a graduation clause to exclude one country's exports from the program when they reach certain market share and certain minimum value.

These measures and preconditions are clearly detrimental to creating a stable trading environment for the ALDCs, and it may discourage producers in the ALDCs from committing needed investment for the purposes of reducing their high production cost. As pointed out by Panagariya (2002), it is exactly due to these measures that preferences have been rendered ineffective. It is foreseeable that strengthening the legal status of these preferences by making them universal, permanent and binding by WTO rules could well boost their performance.

A NUMERICAL EVALUATION OF DEEPENING, WIDENING AND BROADENING TRADE PREFERENCES

Methodology and data

In this section, hypothetical scenarios of deepening, widening and broadening agricultural trade preferences for the ALDCs are conducted using a numerical simulation framework. Due to the multiregional and multisectoral nature of the issues to be analysed, such scenarios are simulated within a global computable general equilibrium model named GTAP (Hertel 1997, chapter 2). The GTAP model is a standard global trade model that features intersectoral linkages through nested Constant Elasticity of Substitution production functions, and international trade linkages through the Armington specifications (Armington 1969). The demand side of the model is featured by a Constant Difference Elasticity demand system. Standard neoclassical assumptions such as constant returns to scale, perfect competition, profit and utility maximization are applied in the model. With this modelling structure, explicit welfare analysis and decomposition pertaining to a change in trade policy can be conducted.

The GTAP model is accompanied by a global data set commonly known as the GTAP database (Dimaranan and McDougall 2002). The main components of the database are detailed input–output tables for all the regions/countries included in the dataset, consistent bilateral trade flows among all the regions/countries, a protection data set that covers *ad valorem* tariff equivalents[13], export subsidies as well as domestic support measures, and macroeconomic aggregates. Together, these components give a snapshot of the world economy at the base year of the database and all the usual equilibrium conditions are satisfied in the database.

The latest version of the database, version 6, contains data for 86 regions and 57 commodities for the year 2001, including a fairly detailed breakdown of agricultural and food products. This study applies an aggregated version of this most recent GTAP database with 21 aggregated regions and 24 aggregated products. The six individual African LDCs (Malawi, Mozambique, Tanzania, Zambia, Madagascar and Uganda) are included in the aggregated database as one group (with the abbreviation of SSA-1), whereas other African LDCs are largely included in the aggregated Rest of Sub-Sahara African (SSA-2) regions[14]. Among the non-LDC regions are influential agricultural trading countries/regions such as Australia and New Zealand, China, Japan, India, Canada, the US, Argentina, Brazil and EU-25. Agriculture and food products in the original GTAP database are incorporated in the aggregated version as separated ones, including: paddy rice, wheat, cereal grains, vegetables and fruits, oil seeds, plant fibres, other crops, other animal products, bovine meats, other meats, vegetable oil, dairy, processed rice, sugar, other processed food products, and beverages and tobacco. In addition to these, non-agricultural products are aggregated as natural resources, textile and clothing, manufacturing and services.

Scenarios

The deepening, widening and broadening scenarios can be formulated as reduction/removal of relevant tariffs facing exporters from the ALDCs. In this study, the GTAP version-6 database is viewed as the initial equilibrium point of the world economy. By applying the shocks pertaining to the policy scenarios to the model, new equilibria after these shocks will be computed and updated datasets corresponding to and describing the new equilibria will then be generated. The differences between the original dataset (the base case) and the updated datasets can then be summarized and viewed as the effects attributable to the policy changes.

Three hypothetical scenarios are considered. Scenario 1 is a multilateral market access liberalization scenario in which all the non-LDC regions contained in the aggregated dataset are assumed to halve their MFN tariff rates for all agricultural and food products. To be consistent with the July Package proposal, the ALDCs are not assumed to conduct any reductions in their own market access barriers. Such a scenario sets a benchmark against which the subsequent broadening and deepening scenarios can be compared.

Scenario 2 is the deepening and widening scenario. In addition to the MFN market access reforms as simulated in Scenario 1, advanced economies (Australia and New Zealand, Japan, rest of East Asia – mainly Korea and Taiwan –, Canada, the US and the EU-25) are assumed to deepen and widen their preferential treatment for the ALDCs to the extent that all tariffs imposed on exports from the ALDCs are eliminated. This is essentially to assume an EBA offer from all advanced countries. The original initiator of the EBA (the EU-25) is assumed to implement the EBA in its entirety, implying that the transitory measures on sugar, rice and bananas are to be removed immediately. For other advanced countries, this scenario implies widening product coverage of their respective preference programs and deepening preference margins for covered products. Since the shocks contained in Scenario 1 are also included in Scenario 2, the differences between results obtained from Scenarios 1 and 2 can then be attributed to the deepening of trade preferences.

Scenario 3 is the broadening scenario. The design of this scenario again allows for comparison with the previous scenarios. Here, both the multilateral market access reform shocks and the deepening shocks are included, in addition to the new shocks involving extending EBA-style preferences to the ALDCs by several large developing economies, including China, India, Mexico, Argentina, Brazil and ASEAN (the Association of South-eastern Asian Nations).

Preferential tariff rates facing the African LDCs

Before proceeding to the simulation results, it is necessary to discuss an adjustment made to the GTAP protection data, which are aggregated from the more detailed MacMaps dataset at HS-6 levels, using bilateral trade weights. This practice, nevertheless, causes serious problems in correctly measuring market access barriers facing the ALDCs. As the ALDCs have either very few or no exports under many tariff lines (see Appendix Tables 1 and 2), the actual protections are greatly

underestimated by the trade-weighted tariffs, which in many instances are simply zero. This is certainly not correct, considering the fact that preference programs in countries such as the US and Japan exclude many dutiable products, hence exposing the ALDCs to generally high MFN rates in those products. Thus, the trade-weighted aggregation scheme fails to capture the actual protection faced by the ALDCs[15]. It also leaves little room for implementing the broadening and deepening scenarios, which involves cutting the MFN rates to the preferential levels. Moreover, if these tariffs were used in simulating the above scenarios, the degree and extent of preference erosion due to multilateral liberalization would also be underestimated because cuts to preference margins relative to the initial preference margins implied by any MFN reform would be smaller with the trade-weighted tariffs (as the starting point) than it should be.

One way to remedy the downward bias associated with the trade-weight method is to apply a simple average scheme – which does not use trade flows as weights – to recalculate aggregate tariffs on exports from the ALDCs, based on the detailed source data from MacMaps. Owing to the fact that there are usually only a few tariff lines appearing for any individual ALDC country in MacMaps, taking the simple averages on a bilateral basis would lead to an incomplete representation of the barriers facing individual ALDCs. Therefore, in calculating the simple averages, tariff lines at the HS6 levels imposed on all ALDC are pooled together, with the assumption that for any given export destination, all ALDCs face the same import barriers[16]. This treatment can be justified by observing that the ALDCs are typically grouped together under existing preference programs and generally face the same preferential and MFN tariffs in a given market. As such, a certain tariff line recorded for one ALDC but not for another can very well be the applicable rate for the latter, should the latter start to export under that line. By way of the above procedure, a better representation of trade barriers facing the ALDCs, including the existing preferential tariff rates, is obtained. The original GTAP database is modified to reflect these changes and the modified database serves as the starting point for the simulations.

Results

Simulation results from the three policy scenarios are summarized in Tables 1 and 2. Here the focus is on the changes in total exports from the two ALDC regions and the resulting changes in economic welfare measured in equivalent variations. To facilitate discussing the individual effects of multilateral market access reforms, the deepening and widening of preferences and the broadening of preferences, results for Scenario 1 are calculated as changes/percentage changes from base case data, whereas results for Scenario 2 (Scenario 3) are computed as changes/percentage changes from the updated dataset obtained from Scenario 1 (Scenario 2). In other words, the results reported for Scenario 2 are due to the deepening and widening of preferences only, whereas the results reported for Scenario 3 are due to the broadening of preferences only.[17]

Scenario 1

As can be seen from Table 1, total agricultural and food exports from both SSA-1 and SSA-2 would drop by over six% under Scenario 1. Underlying this aggregate change are near-universal declines in exports of all agricultural and food products. The largest percentage changes are in vegetables and fruits, bovine meats, other meats and sugar. However, the most significant changes in terms of trade volumes are in other crops, other food, and vegetables and fruits, as these are the products in which the two ALDCs have substantial base case exports. For instance, the decreases in exports of other crops of 5.9% for SSA-1 and 4.4% for SSA-2 are equivalent to losses of export volumes of around US$ 60 million for the former and US$ 150 million for the latter. Among the few exceptions to this declining pattern are the slight increases in exports of rice and plant fibres. However, only the increases in plant fibres seem to be meaningful as the base case exports of rice are very small.

Based on these results, it seems that the two African regions would lose part of their exports in the wake of the assumed multilateral market access reforms, provided that no further preferences are granted. The decline in their exports is coupled with increased world trade in virtually all agricultural and food products. In fact, total world export volume in dollar terms would be boosted by almost 6% due to the market access reform, implying that the ALDCs' shares of agriculture exports would shrink.

Scenario 2

Deepening and widening trade preferences by developed countries would reverse the negative export effects on the two ALDCs created by the multilateral market access reform. Results from Scenario 2 (also in Table 1) show that as compared to Scenario 1, total exports of agricultural and food products from SSA-1 would increase by over 17% whereas those from SSA-2 would increase by around 30%. In dollar terms, following the deepening and widening action, total agricultural and food exports from SSA-1 would be over US$ 2.4 billion, representing an increase of over US$ 360 million from Scenario 1. For SSA-2, the increase is almost US$ 2.5 billion. These increases more than make up for the losses sustained from the multilateral market access reform.

The increase in total agricultural exports would not be evenly distributed across products. Those products that are important to the ALDCs and that are excluded from the current preference programs are the ones that would experience the greatest increase. In percentage terms, the increases are the highest for meat products, dairy products and sugar for both regions. In addition, exports of vegetables and fruits and oil seeds would also increase significantly for SSA-2. Most notable among the changes are the increased exports of sugar, reaching over US$ 400 million for SSA-1 and around US$ 2.5 billion for SSA-2, due to the high market access barriers for non-LDC exporters (hence, large preference margins) and that several advanced countries have maintained substantial trade barriers for sugar exports from the ALDCs.

Table 1. *Changes in exports of selected agriculture and food products from SSA-1 and SSA-2*

	Scenario 1				Scenario 2				Scenario 3			
	Export volume (million US$)		% change		Export volume (million US$)		% change		Export volume (million US$)		% change	
	SSA-1	SSA-2	SSA-1	SSA-2	SSA-1	SSA-2	SSA-1	SSA-2	SSA-1	SSA-2	SSA-1	SSA-2
grains	35.8	48.4	-2.6	-9.5	36.3	48.6	1.3	0.4	36.3	49.1	0.1	0.9
vegetables & fruits	130.0	810.1	-10.9	-8.3	130.2	1109.0	0.2	36.9	212.3	1192.5	63.0	7.5
oil seeds	25.2	236.1	0.7	-21.5	25.5	403.7	1.2	71.0	25.2	398.8	-1.3	-1.2
plant fibres	112.9	896.5	0.3	0.5	108.3	841.8	-4.1	-6.1	113.3	910.7	4.6	8.2
other crops	1040.6	3322.0	-5.9	-4.4	1078.7	3047.9	3.7	-8.3	1137.6	3104.8	5.5	1.9
bovine meats	1.6	25.8	-26.0	-14.4	1.9	24.4	17.6	-5.5	2.1	25.0	12.6	2.7
other meats	7.5	36.4	-11.4	-9.4	9.7	53.8	28.9	47.6	14.6	61.6	50.5	14.5
vegetable oils	6.8	142.7	-8.4	-7.8	6.5	130.0	-4.5	-8.9	6.8	129.4	5.5	-0.5
dairy	1.1	29.3	-8.0	-5.8	3.3	47.9	191.6	63.5	3.3	49.1	1.1	2.6
rice	5.7	30.9	2.3	1.8	5.5	28.8	-3.7	-6.6	5.3	28.5	-3.8	-1.1
sugar	93.6	169.9	-21.3	-49.8	411.6	2507.8	339.9	1376.1	402.6	2499.4	-2.2	-0.3
other food	508.3	2058.1	-5.6	-5.6	513.7	2034.3	1.1	-1.2	511.4	2079.8	-0.4	2.2
Total agri-food	2052.1	8226.2	-6.5	-6.9	2415.3	10697.5	17.7	30.0	2555.7	10960.3	5.8	2.5
Total	6569.2	52985.5	-0.7	-0.5	6674.8	53948.0	1.6	1.8	6718.2	54071.2	0.7	0.2

Sources: simulation results

Table 2. *Welfare results for selected countries/regions (million US$)*

	Scenario 1			Scenario 2			Scenario 3		
	Efficiency	Terms of trade	Total	Efficiency	Terms of trade	Total	Efficiency	Terms of trade	Total
Australia & New Zealand	4.2	566.2	545.3	1.2	5.8	6.1	-0.2	-6.5	-6.8
China	830.8	-164.6	575.2	3.9	-1.6	-4.4	3.0	-6.1	-2.6
Japan	3263.5	-536.2	2766.7	-4.3	-37.3	-49.3	2.0	-0.7	0.5
Rest E. Asia	1141.5	-32.5	1067.6	-81.5	-27.0	-109.8	2.1	-0.9	1.1
ASEAN	554.7	289.6	760.9	-2.6	9.8	7.1	-7.5	-24.1	-31.2
India	830.8	-216.0	610.9	-6.9	-8.1	-16.6	22.5	-26.9	-4.6
Canada	674.5	-112.9	551.3	1.4	9.7	11.0	0.3	-2.4	-1.8
USA	87.5	957.0	1292.6	14.5	-68.3	-99.4	2.1	-10.7	-18.4
Mexico	321.2	-208.1	108.9	-0.1	6.3	5.8	4.2	-3.5	1.0
Argentina	46.3	259.4	270.1	-0.1	-2.4	-2.2	0.0	-1.8	-1.6
Brazil	162.2	888.0	1098.6	-3.0	-5.4	-10.3	1.2	-5.0	-4.3
EU25	5586.4	-1255.9	4276.2	-72.6	-494.1	-582.3	15.5	-33.0	-19.9
SSA-1	-1.4	-42.5	-50.0	3.9	91.4	111.8	-1.1	48.2	53.5
SSA-2	-38.9	-126.8	-184.2	168.2	527.9	772.4	17.0	66.4	91.2
World	16400.2	-12.2	16387.8	3.6	-4.6	-1.6	62.5	-0.2	62.3

Sources: simulation results

In contrast to the large export expansions of many products, exports of several products from the two ALDCs would decrease. Notable examples are exports of plant fibres from both regions and other crops from SSA-2. This is due to the intersectoral resource movement triggered by the expansion of preferential coverage and the deepening of existing preference programs. In fact, the existing preferences may have distorted production and trade patterns in the beneficiary countries. Making such preferences universal and homogenized across sectors may help the beneficiary countries reconfigure their production and trade patterns according to true comparative advantages so as to avoid narrow or wrong specialization. For instance, the expansion of exports of 'other food products' would lead to declining exports of 'other crops' (mainly tropical products) in SSA-2. This in turn may also help mitigate the long-term trend of declining prices of such products.

Scenario 3
Those developing countries chosen for conducting the broadening scenario (Scenario 3) generally do not offer extended preferential treatment targeting the ALDCs, their imports from the two African regions are very small, and in some cases no such imports exist according to the GTAP database. So the resulting changes in exports from the ALDCs in Scenario 3 not only depend on the MFN market access barriers of the chosen developing countries, they are also related to the initial export volumes from the ALDCs. The latter is important since the modelling framework adopted for this paper uses the so-called Armington trade structure, which is known to experience difficulties in generating trade when there is little or no trade to begin with.

The overall increase in agricultural exports due to the broadening of trade preferences would be around US$ 130 million for SSA-1 and US$ 260 million for SSA-2. The main sources of such an increase are from vegetables and fruits, plant fibres, other crops, and meat products. In contrast, exports of sugar, rice and oil seeds from both regions actually decrease slightly. It should be noted that the overall increases in exports reported for Scenario 3 are much smaller than those obtained from the deepening and widening scenario (Scenario 2). Although this result may have something to do with the Armington trade structure employed in the model and the fact that there is little agricultural trade between the ALDCs and those developing countries (that are assumed to grant preferences), the market size of the developed countries and their role as the ALDCs' traditional markets may be more responsible for the relatively larger export effects from the deepening and widening scenario[18]. This result seems to discount the optimism on the South-South trade, at least in the short and medium run.

Welfare effects[19]
While the multilateral market access reforms would benefit most non-LDC countries, the welfare effects turn out to be negative for the two African regions (losses of about US$ 50 million and 184 million for SSA-1 and SSA-2, respectively), a result that is consistent with Yu and Jensen (2005).

To understand these welfare results from Scenario 1, the focus should be on the negative export price effect, which dominates the total terms-of-trade effect for both regions. This negative export price effect is due to two reasons. On the one hand, multilateral market access reforms would lead to lower prices in the export markets, and hence lower prices for those ALDC exports covered in preference programs. At the same time, lowering MFN market access barriers would lead to higher prices for exports from countries not receiving preferential treatment. Hence, non-LDCs would be able to export and crowd out exports originated from the ALDCs. On the other hand, preferential access granted to the ALDCs would actually 'trap' their exports and prevent them from shifting to other markets, thereby further dampening the prices of ALDCs' exports. In addition, the ALDCs may be also hurt by higher world market prices for their imports.

The negative welfare effects on the two African regions would be more than offset by the deepening of existing preference programs of the developed countries. Results from Scenario 2 show that such a move by the developed countries would not only result in improved terms-of-trade for the African LDCs, it would also lead to efficiency gains for them. For SSA-1, the total welfare improvement from Scenario 1 would be over US$ 110 million, whereas for SSA-2 this would be almost US$ 800 million. Most of these gains are due to improved terms-of-trade, with the positive export price effects being the dominant factor.

While deepening preferences by the developed countries seems to generate substantial benefits to the African LDCs, according to the simulation results, broadening preferences would not generate similar exports expansion and welfare gains to the African LDCs. The additional welfare gain to SSA-1 from the broadening scenario would be a little over US$ 50 million and that to SSA-2 would be around US$ 90 million.

Effects on preference-granting and other countries
Deepening trade preferences by developed preference-granting countries would lead to small terms-of-trade losses to these countries. For instance, the EU-25 would suffer a welfare loss of US$ 582 million (see Table 2). However, this loss is much smaller than the gains obtained from the multilateral market access reforms (i.e. Scenario 1). On balance, the developed countries would still gain significantly from multilateral market access reforms, even if taking into consideration their losses from deepening their preference programs to the ALDCs. For non-LDC developing countries, the negative impact of more favourable preferential treatment for the ALDCs would also be very small, implying that the expansion of exports from the ALDCs would generally not be a big concern for them. For example, the economic welfare of China and India would be reduced by only about 4 and 17 million US dollars, respectively. As such, by broadening trade preferences to the ALDCs, the advanced developing countries would suffer very minor welfare losses as well.

Overall, the cost of broadening and deepening preferences for African LDCs appear to be very minor to other countries. Although not presented here, the trade diversion effects are also very small, a result that is consistent with the ALDCs' very

small exports in total world trade. Therefore, the concern on trade diversion does not appear to be a big issue.

CONCLUSIONS

The July Package of WTO agricultural trade negotiations calls for duty and quota free access for exports from the LDCs. This chapter discusses the merits of this proposal.

The usefulness of preferences has been revealed by the high utilization rate of agricultural trade preferences. The case for improving trade preferences is further supported by several recent studies examining the possibility and extent of preference erosions. Based on these, this chapter proposes deepening, widening, broadening and strengthening trade preferences for the ALDCs. The feasibility of the proposal is reflected in the incomplete coverage of existing preferences programs in key countries and in the complicated conditions and rules attached.

A set of CGE simulations illustrates the potential impact of this proposal. The first policy scenario confirms the ALDCs' vulnerability in multilateral trade liberalization, in terms of reduced export volumes and export shares and deteriorated terms-of-trade. Deepening and widening trade preferences by developed countries (Scenario 2) would more than offset these negative effects on the ALDCs. At the same time, harmonizing the preferences programs to duty-free and quota-free access for all products by developed countries would help reveal true comparative advantages of the ALDCs. Adding selected advanced developing countries to the preference-granting group (i.e., broadening preferences, as in Scenario 3) would further expand exports from the ALDCs and improve their economic welfare. It should be noted that the added benefits from broadening preferences would be smaller than what could be achieved from the deepening and widening scenario. This result emphasizes the importance of free access to developed countries' markets and differs from the belief that enhanced South-South trade may benefit the LDCs more.

Of course, these benefits would not be fully realized without strengthening the legal foundation of the preference programs. The ALDCs need to conduct domestic policies reforms aiming at creating an enabling environment for their export-oriented industry to take advantage of this opportunity.

While the current paper provides some support to the July Package text on offering duty and quota free access to exports from the LDCs, the political feasibility of this proposal is entirely another matter. Nevertheless, the numerical results of the chapter suggest that the proposal would impose little cost on the rest of the world due to limited trade diversion. Moreover, one need not worry about the conflict between the preferences and the multilateral liberalization process. The very reason that some African countries are not willingly participating in the Doha Round is partly due to their fear of losing out on the preference front. An offer of deepening, widening, broadening and strengthening preferences should create the right incentive for them to agree to a new deal. And this narrow yet vital interest of

the ALDCs will by no means jeopardize the whole dynamics among major trading nations, and implementing this idea will not alter the world trade patterns.

Having argued for improving preferences for the ALDCs and having illustrated numerically the benefits to these countries and the small costs to preference-granting countries, a cautionary word should be added. Just as one should not dismiss the value of the preference programs for their poor historical performance, one also needs to realize the limits and diminishing nature of this favourable treatment. Preferences cannot and should not be viewed as a source of competitiveness. Rather, they only provide an important yet temporary opportunity for the ALDCs to expand and develop their economy. Over-estimating the value of preferences is just as misleading as not granting this opportunity or not taking advantage of it.

NOTES

[1] I thank David Blandford, Niek Koning and Per Pinstrup-Andersen for suggestions on pursuing this topic and for valuable comments on earlier drafts of the paper. Useful discussions with Mark Gehlhar, Alan Matthews, Chantal Nielsen and John Wainio are acknowledged. I am also indebted to Betina Dimaranan for providing detailed tariff data. The views expressed in this paper are mine alone and should not be attributed to the institute with which I am affiliated.

[2] Unless preferential market access barriers continue to fall at the same rate as MFN barriers, multilateral reforms will inevitably erode the preferences margin. As preferences for some products have already reached duty- and quota-free status, any MFN reforms will definitely lead to preference erosion for these products. This indeed points to the nature of such programs – they are meant to be temporary and exporters from the LDCs are expected to become competitive when the preference margin ceases to exist.

[3] The chapter by Blandford provides a more detailed discussion on the general role of preferences.

[4] Brenton (2003) provided an initial evaluation of the impact of the EBA for the year 2001 and found out that utilization of this initiative by non-ACP LDCs was low. The study suggests that the rules of origin may be to blame. However, the fact that the study only used data gathered for the first year of implementing the EBA and the limited effective product coverage of the EBA may also explain the low utilization rate found in the study.

[5] This problem can be illustrated using data on bilateral exports from the African LDCs. Appendix Tables 1 and 2 provide such an overview. There, export volumes smaller than US$1 million are shaded. A casual look reveals two features of export patterns of these countries: very low export volumes and very narrow export concentrations.

[6] An example of this point is the reform of the Common Agricultural Policy (CAP) of the EU. A study by Frandsen et al. (2003) shows that reforming the EU sugar policy may hurt the recipient countries of tariff-free sugar quotas and benefit more efficient exporters that do not receive preferences.

[7] In addition to the erosion caused by market access reforms, possible negative terms-of-trade effects caused by removing agricultural subsidies in the OECD countries are also a concern for net food-importing LDCs. Lowering these subsidies will likely reduce the incentives for farmers to overproduce in the OECD countries and will lead to higher world-market prices for food and agricultural products. Moreover, many LDCs have already had difficulties in keeping their balance of payments in check. These price shocks will likely exacerbate the situation. Lastly, these negative effects may well be compounded and reinforced by the many domestic supply-side constraints (which prevent them from taking full advantage of any export opportunities arising from trade reforms) and the chronic external debt burdens (which make it difficult for them to finance more expensive imports) of these countries. Some of these points have been addressed in Yu and Jensen (2005) in their analysis of the EBA initiative of the EU.

[8] Blandford (2004) proposed these measures and argued that they could help improve the effective participation of the LDCs in the multilateral trading system.

[9] One nuance is that the EU may need to balance the interests of different types of recipients of its preference programs. For example, the transitory measure adopted for sugar exports from the LDCs

may be more a response to the demands from non-LDC ACP countries than to those from domestic producers in the EU.

[10] These are drawn from the summary compiled by Breton and Ikezuki (2005) and Wainio and Gehlhar (2004).

[11] Numbers in this paragraph are calculated from the UNCTAD TRAINS database and are drawn from Breton and Ikezuki (2005).

[12] Serious disruptions refer to, among other things, reduction in market shares of European producers, reduction in their production, increases in their stocks, closure of their production capacity, bankruptcies, low profitability, low rate of capacity utilization, employment, trade and prices (EC 2001a; 2001b).

[13] The newest GTAP version-6 database incorporates market access barrier data contained in the MacMaps data set (Bouët et al. 2004), which encompasses not only *ad valorem* tariff rates, but also *ad valorem* equivalence of specific tariffs and Tariff Rate Quotas.

[14] The aggregated SSA-2 region contains 43 individual countries, 33 of which are LDCs and the rest are non-LDCs. The GTAP version-6 database does not provide a further breakdown of this region. Therefore we are forced to treat this as an aggregated LDC region. Any preference granted by developed and advanced developing countries in practice and in the hypothetical scenarios of the study is assumed to be available to the non-LDC countries in SSA-2 region as well. Consequently, numerical results obtained for this aggregated region are for both the LDC members and non-LDC members of this group. Nevertheless, as the majority of countries in this group are LDCs and most of the non-LDC members also receive preferences, it is expected that this is a meaningful grouping.

[15] A rather extreme example to illustrate this point is to consider the Japanese rice tariff: while the trade-weighted tariffs facing other exporters range from 300% (for the EU-25) to 1000% (for China), they are simply zero for the ALDCs!

[16] Of course, the ALDCs face different barriers in different export destinations.

[17] The results presented in this section are computed without including the Japanese tariff on rice in the deepening and widening scenario. This warrants some explanation here. The Japanese rice tariff is set at a prohibitive level. In the multilateral market access scenario, the assumed halving of this tariff would result in a new tariff that is still prohibitive. Meanwhile, a complete deepening scenario would remove this tariff for the two African regions. As a result, exports – and hence outputs – of rice in the two regions would increase dramatically, leading to massive resource reallocation into rice production. However, considering the size of the Japanese rice market, it is not really credible for Japan to maintain a prohibitive tariff on everybody else but the ALDCs. As such, in the scenarios reported here, this possibility is excluded.

[18] A simple sensitivity analysis with respect to the Armington elasticities has been carried out by re-running the three experiments with a new set of elasticities that are twice as large as the original ones used in the GTAP model. Results from these simulations show that the increases in agricultural exports from the African LDCs will be higher under both the deepening and the broadening scenarios, as compared to those reported in Table 1. Nevertheless, higher Armington elasticities boost exports under the deepening scenario much more than under the broadening scenario, suggesting that the qualitative conclusion reported in the main text is quite stable with respect to the degree of substitution in the Armington structure.

[19] Results discussed here are comparative static aggregate welfare effects, obtained by calculating the equivalent variation. These results can not be directly used to evaluate the effect of trade policy changes on poverty. But it is well established in the literature that farm export expansion – which has been observed in the results of this paper – has important multiplier effects for economic development in the poor countries.

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Appendix Table 1. Base case export volumes of SSA-1 (million US$)

	Australia and New Zealand	China	Japan	Asean	India	Canada	USA	Mexico	Argentina	Brazil	EU25	Mid-East and N.Africa	S.-Afr. Custom Union	SSA-1	SSA-2	World
Paddy rice	0	0	0	0	0	0	0.2	0	0	0	0.5	0	0	0.1	1.3	2.5
Wheat	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.3	0.6
Grains	0.3	0.4	0.9	0.6	0.1	0.5	3.3	0.2	0.2	0.1	8.1	0.6	0.2	10.5	9.3	36.7
Fruits and vegetables	0.5	0.6	3	3.9	53.6	1.3	6.7	0.3	0.2	0.3	56.8	5.6	2.7	1.2	4.8	145.9
Oil seed	0	0.1	11.2	0.4	0.3	0.3	0.8	0	0	0	4.8	1.2	2.9	0.6	1.5	25
Plant fibres	0	3.4	0.7	18.3	13.8	0.1	0	0.1	0	0	39.3	1.4	12.3	0.6	7.2	112.6
Other crops	11.1	2.5	70.1	105.3	3.7	2.9	115	10.6	1.8	2.1	505	50	22.3	34.6	79.1	1106.1
Other animal products	0.1	1.9	1.3	2	1	0.2	3.5	0.2	0	0	10.9	2.8	1.1	1	1.9	50
Wool	0	0	0	0	0	0	0.1	0	0	0	0.2	0	0	0	0	0.5
Bovine meats	0	0	0.1	0.1	0	0.1	0.4	0	0	0	0.9	0.1	0	0	0	2.2
Other meats	0.1	0.1	0.3	0.2	0	0.1	1	0.1	0	0	2.6	0.2	0.1	1.2	1.6	8.5
Vege oils	0	0	0.1	0.9	0	0	0.3	0	0	0	0.5	0	1.7	0.9	2.3	7.4
Dairy	0	0	0	0.1	0	0	0.1	0	0	0	0.1	0.1	0.1	0.2	0.5	1.2
Rice	0	0	0	0.1	0	0	0.3	0	0	0	0.8	0.1	0.1	0.4	3.3	5.6
Sugar	0	0	0	0	0.1	0	16.7	0	0	0.5	37.3	7	1	10.8	44.3	118.8

App. table 1 (cont.)

App. table 1 (cont.)

	Australia and New Zealand	China	Japan	Asean	India	Canada	USA	Mexi-co	Argen-tina	Brazil	EU25	Mid-East and N.Africa	S.-Afr. Custom Union	SSA-1	SSA-2	World
Other food	0.7	1.3	39.3	12.4	0.2	1	11.4	0.4	0.3	0.2	393	6.2	10.7	3.3	29.5	538.7
Beverage / Tobacco	0.3	0.3	1	0.4	0	0.5	3.4	0.2	0.1	0.1	8.4	0.6	1.2	0.3	3.3	22.8
Total ag. food	13.2	10.7	128.5	145.1	72.8	7.3	164.8	12.2	2.7	3.3	1073	76.3	56.4	66	190.2	2193.7
Total	28.8	104.3	290.6	290	124.4	36.5	643.4	26.6	10.2	14	3206.8	268.8	576.5	130.9	285.4	6614.2

Sources: GTAP database version 6.

Note: For presentation purposes, numbers smaller than 1 million US dollars are shaded in the table.

Appendix Table 2. Base case export volumes of SSA-2 (million US$)

	Australia & New Zealand	China	Japan	Asean	India	Canada	USA	Mexico	Argentina	Brazil	EU25	Mid-East and N. Africa	S Afr, Custom Union	SSA-1	SSA-2	World
Paddy rice	0	0	0	0	0	0	0.1	0	0	0	0.2	0	0	0.1	7.4	7.9
Wheat	0	0	0	0	0	0	0	0	0	0	3.7	1.3	0	0.2	2.5	8.1
Grains	0.3	0.7	1.3	0.6	0.1	0.6	4.4	0.2	0.2	0.2	12.6	4.7	0.1	0.2	12.1	53.5
Fruits and vegetables	0.3	0.6	5.3	2.9	60.7	0.5	8.2	0.4	0.1	0.4	724.9	17.6	0.8	0.3	40.1	883.6
Oil seed	0	0.1	31.3	1.1	0.1	0.9	6.9	0	0	0	65.2	102.7	1.3	0.3	6	300.5
Plant fibres	0.3	3.2	3.4	194.7	107.5	2.8	0.4	7.4	0	32.3	261.5	73.4	2.5	0.3	33.4	891.8
Other crops	6.8	10.9	83.8	34.1	11.6	45.4	346.8	6.7	0.9	18.1	2195.1	225.6	9	10.6	151.5	3474
Other Animal products	0.1	3.4	1.7	7.7	12.3	0.6	7.7	0.9	0	0.1	74.7	7.5	0.4	1.1	5.8	154.1
Wool	0.2	0.3	0.9	0.4	1.7	0.3	2.4	0.2	0.1	0.1	5.6	0.4	0.1	0	0.1	14.2
Bovine meats	0.1	0.2	0.3	0.1	0	0.1	1.1	0.1	0	0	3.4	22.7	0.1	0.5	0.5	30.1
Other meats	0.2	1	0.6	0.5	0.1	0.5	2.4	0.1	0.1	0.1	16.5	1.5	0.3	3.2	11	40.2
Vege oils	0.1	0.2	0.8	0.2	0	0.2	8.9	0.1	0	0	86.9	0.3	0.1	4.1	45.7	154.8
Dairy	0.1	0.1	0.2	0.5	0	0.1	0.7	0	0	0	9.1	1.6	0.1	1.4	16	31.1
Rice	0.2	0.4	0.1	0.5	0.1	0.4	2.9	0.2	0.1	0.1	5.8	0.5	0.1	0.1	17.5	30.3

App. table 2 (cont..)

App. table 2 (cont.)

	Australia & New Zealand	China	Japan	Asean	India	Canada	USA	Mexico	Argentina	Brazil	EU25	Mid-East and N. Africa	S Afr, Custom Union	SSA-1	SSA-2	World
Sugar	0.3	0.2	0.2	0.4	0.1	0.2	15.2	0.1	0.1	0.1	295	1.4	0	0.5	17.6	338.6
Other food	9.3	28.9	104.6	59.4	1	8.4	69.7	4.6	1.3	1.9	1465.1	22.2	14.1	20.1	234.5	2180
Beverage/Tobacco	0.8	1.1	6.1	1.7	0.3	2.1	15.6	0.8	0.4	0.4	42.1	2.3	0.4	4.9	85.7	173.6
Total ag. food	19.4	51.7	242	305.3	195.7	63.5	497.3	22	3.4	53.9	5277.3	493.2	30	47.9	728.9	8835.8
Total	144.4	2281.5	1271.5	1226.3	680.4	405.4	14625.9	218.2	109.5	1453.9	21176.1	1300.2	1537.2	381.7	2118.9	53253

Sources: GTAP database version 6.

Note: For presentation purposes, numbers smaller than 1 million US dollars are shaded in the table.