MAKING SENSE OF AGRICULTURAL TRADE POLICY REFORM

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ABSTRACT

Proposals for agricultural trade reform put forward by the main protagonists remain far apart, with little sign of convergence. In an attempt to progress the negotiations towards a successful outcome, the chairman of the WTO Committee on Agriculture has proposed a compromise. The alternative proposals by the United States, the European Union and the WTO are analysed with the Agricultural Trade Policy Simulation Model, a static, multi-commodity, multi-region, partial equilibrium trade model. The estimated annual global welfare gains are $26 billion, $12 billion and $17 billion respectively. Least developed countries, as a group, gain from the US proposal but are made worse off under the WTO and EU proposals. Furthermore, in the best case many individual countries experience welfare losses. However, all countries enjoy increased export revenues and tariff revenues hold up quite well under the two less stringent proposals.

INTRODUCTION

Proposals for further reform in the current ongoing negotiations on agriculture appear to be diverging rather than converging. At least, the proposals of the two major protagonists, the United States and the European Union, seem to be headed in different directions. The United States, supported by the Cairns Group of agricultural exporters, appears to be pressing for substantial liberalisation of agricultural trade. By contrast, the European Union, with support from Japan, Korea, Switzerland and Norway, is taking a more conservative approach. Under the programme adopted by the Special Session of the Committee on Agriculture, the WTO chairman, Harbinson, is required to prepare a draft of modalities for further commitments. Concerning the reduction in tariffs and export subsidies, the first draft in February 2003 and its revision in March 2003 was a compromise between the EU and the US proposals. However, the Harbinson proposal emphasized and described the special needs of developing countries in more detail. At this stage (May 2003), these countries proposals may be seen somewhat as ambit claims, with scope for convergence at a latter stage. Nonetheless, it is useful to analyse the potential impacts of the various proposals, particularly on third countries.

Of particularly interest is the impact of negotiated outcomes on developing countries. Development issues have become more important within WTO negotiations in recent years following the absence of substantial benefits flowing to developing countries after the implementation of the Uruguay Round reforms. Indeed, developing country concerns may have contributed to the failure of the WTO Ministerial in Seattle in 1999. Recognition of their concerns was emphasised at the Doha Ministerial Meeting in November 2001, whereupon a work program focusing on development issues was initiated. Much of the work program involves technical cooperation, including assisting developing countries in formulating a negotiating position. This paper contributes to this objective by providing negotiators with a quantitative assessment of the potential impacts of the three proposals. UNCTAD's Agricultural Trade Policy Simulation Model (ATPSM), a deterministic, comparative static, partial equilibrium trade model is used to assess the potential impacts on developed, developing and least developed countries of the Harbinson (revised version), US and EU proposals, given that they are actually implemented as specified.

The paper is laid out as follows. The next section describes the negotiating context and the key proposals. Various modelling issues and scenarios are discussed in Section 3. Section 4 describes the results. The paper ends in Section 5 with policy implications, limitations and conclusions.

THE STATE OF PLAY AND THE PROPOSALS FOR REFORM

The Uruguay Round Agreement on Agriculture led to tariffication of many non-tariff barriers and agreed reductions of 36 per cent from bound tariff rates (with a minimum of 15 per cent on each tariff line), plus additional reduction commitments on domestic support (20 per cent) and export subsidies (21 per cent in export volumes and 36 per cent in expenditure) to be implemented over six years. Developing countries agreed to commitments at two thirds of these levels to be implemented over ten years. Part of the agreement included a built-in agenda for further negotiations.

The current WTO negotiations on agriculture focus on five key issues. These are market access, domestic support, export subsidy, special and differential treatment for developing countries and non-trade concerns.

Market Access
WTO members have bound themselves to maximum tariffs on nearly all agricultural products. The issue market access is about reductions in tariffs and other issues concerning the improvement of the access to foreign markets. Tariffs are still significant. The average of negotiated out-of-quota bound tariff rates on agricultural products globally is 61 per cent and the average of applied rates is 29 per cent.[1] The simple average of bound rates in developed countries is 51 per cent and the average of applied rates is about 48 per cent. Developing country applied tariffs on agricultural products average 26 per cent, but may range as high as 200 or even over 300 per cent. Bound rates are much higher than applied rates, averaging 63 per cent. Furthermore, the substantial gap between applied and bound tariffs in developing countries implies that negotiated reductions in bound tariffs will have little or no impact on trade flows in many instances. Finally, the higher tariffs tend to be at the higher stage of processing, limiting the scope for value added industries. Thus, there remains plenty about which to negotiate.

The Uruguay Round introduced several retrograde steps. The Agreement on Agriculture led to the establishment of a two-tier tariff system based on import quotas (the tariff rate quota system) for 1,370 tariff lines. Under this system imports are taxed at the relatively low inquota rate until the quota is filled, at which point the higher outquota rate applies. Two-tier tariffs tend to be used by developed countries with highly protected agriculture to shelter their sensitive products. Norway has 232 such TRQs, but the European Union (87), the United States (54) and Japan (20) are well represented.

The US proposal for addressing market access issues is to reduce *applied* tariffs according to a harmonising Swiss Formula by which higher tariffs are reduced more than proportionately (USDA 2002). Under this formula the maximum final tariff is proposed to be 25 per cent. This implies, for example, that a tariff of 100 per cent would be reduced according to (100*25/(100+25) =) 20 per cent while an initial tariff of 10 per cent would be reduced to 7 per cent. Other elements of the proposal include elimination of in-quota tariffs and a 20 per cent expansion in import quotas. This proposal has the merit of requiring substantial reform, of cutting the most distortionary tariffs by the largest amounts and eliminating the water in the tariff by focusing on applied rather than bound tariffs. However, a uniform approach based on a single harmonising formula has a significant drawback for developing countries, where agricultural tariffs are on average higher than in developed countries. Thus, developing countries would be making proportionally greater cuts. This is in contrast to the Uruguay Round where developing countries implemented lesser (two thirds) reductions over a longer implementation period. The approach doesn't recognise special and differentiated treatment for developing countries as previously agreed in the Uruguay Round.

The EU proposal for market access reform is a continuation of the Uruguay Round approach, a 36 per cent average cut in bound tariffs with a minimum 15 per cent cut in each tariff line (EC 2002). The major attraction, and conversely, problem with this approach is the inherent flexibility.

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[1] These are simple averages at the four digit level of *ad valorem* tariff equivalents for commodities listed in table 1. Applied rates are set equal to bound rates if not specified. Tariffs are averaged over 142 countries for which data are available.

For example, a reduction in tariffs on a sensitive product from 100 to 85 per cent could be offset by reducing a ten per cent tariff to 4.3 per cent to give the required simple average cut of 36 per cent. The European Union has not suggested any increase in import quotas.

The Harbinson Proposal also applies to bound tariff rates (WTO Committee on Agriculture 2003). Out-of-quota tariffs shall be reduced by a simple average for all agriculture products subject to a minimum reduction per tariff line. The formula includes bands where depending on the initial tariff average and minimum reductions are different. Proposed reductions are higher for higher tariffs. For developed countries the proposed reduction is:

$$x > 90 \qquad \text{average reduction} = 60\,\% \quad (\text{minimum}\,45\%)$$
$$15 < x \le 90 \qquad \text{average reduction} = 50\,\% \quad (\text{minimum}\,35\%)$$
$$x \le 15 \qquad \text{average reduction} = 40\,\% \quad (\text{minimum}\,25\%)$$

where x is the initial bound tariff. For developing countries the bands are:

$$x > 120 \qquad \text{average reduction} = 40\,\% \quad (\text{minimum}\,30\%)$$
$$60 < x \le 120 \qquad \text{average reduction} = 35\,\% \quad (\text{minimum}\,25\%)$$
$$20 < x \le 60 \qquad \text{average reduction} = 30\,\% \quad (\text{minimum}\,20\%)$$
$$x \le 20 \qquad \text{average reduction} = 25\,\% \quad (\text{minimum}\,15\%)$$

Least developed countries shall not be required to undertake any reduction commitments.[2]

A further issue concerning market access is the special agricultural safeguard. Safeguards are contingency restrictions on imports taken temporarily to deal with special circumstances such as a sudden surge in imports. The US proposes to eliminate the existing special agricultural safeguard whereas the European Commission proposes to extend special safeguard instruments to facilitate the implementation of further tariff reductions and to meet the developing countries' concerns on sensitive agricultural crops ("food security box"). This shows that this issue can also be considered under special and differential treatment of developing countries.

Domestic Support
Support levels are still significant despite declarations of intent. For example in the OECD countries total agricultural production in 2000 was valued at the farm gate at $632 billion, but to encourage this production, producers received support of $323 billion, over $300 per capita and nearly a $1 billion a day (OECD 2002). The major beneficiaries of this largesse are producers in the European Union (35 per cent of OECD receipts), the United States (27 per cent) and Japan. A third of every dollar received by OECD producers is attributed to assistance. Consumers contribute about half the cost, taxpayers the remainder.

Most developing countries cannot afford substantial domestic support, and such measures in developed countries appear to increase global production forcing down world prices. This benefits net food importers in developing countries at the expense of net exporters. Thus, developing countries are divided on this issue.

In WTO terminology, subsidies are classified by "boxes". In agriculture there is a green, an amber and a blue box. Green box support must not distort trade. The blue box contains subsidies that are tied to production limits. Amber box support, defined by the Aggregate Measurement of Support (AMS), are trade distorting measures and subject to reduction commitments.

The US proposal for domestic support reductions is to reduce over five years the non-exempt support as (amber box) and production-limited (blue box) support to at most 5 per cent of the average value of agricultural production in the base period 1996-98.

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[2] Harbinson has since revised his draft, including four categories for developing country tariff cuts. The resulting global welfare gains are virtually unchanged from the initial draft.

By some later date all non-exempt domestic support shall be eliminated. Developing countries would have special conditions to enable them to provide additional support to facilitate development and food security.

The EU proposal involves maintaining the amber, blue and green boxes essentially unchanged and reducing the (amber box) Aggregate Measurement of Support by 55 per cent. This is substantially more than the 20 per cent in the Uruguay Round. However, the green box criteria would be expanded to encompass so-called non-trade concerns such as rural development, the environment and animal welfare. For example, payments to compensate for the additional cost of meeting higher animal welfare standards would be exempt from reduction commitments under the proposal. This is in contrast to the US proposal whereupon the green box criteria would not be expanded. At present the EU's AMS expenditure is not a binding constraint, but may become so. A flexible green box allows support to be switched from the non-exempt amber to the exempt green box, for example by increasing direct income support. Finally, the European Union proposes eliminating the *de minimis* provision in developed countries. The European Union makes less use of this provision than the United States and has less to lose from relinquishing it.

The Harbinson proposal on domestic support is to maintain green box support measures unchanged. Blue box payments shall be reduced by 50 per cent in developed and 33 per cent in developing countries. The amber box Aggregate Measurement of Supports shall be reduced by 60 per cent in developed and 40 per cent in developing countries. The *de minimis* level of 5 per cent shall be reduced to 2.5 per cent.

Export Subsidies
The majority of agricultural export subsidies are provided by the European Union. It is perhaps not surprising than that the United States proposes to eliminate export subsidies over five years whereas the European Union suggests a modest reduction of an average 45 per cent in expenditure. As with tariff cuts, averaging provides flexibility by permitting large cuts in lightly traded or lightly protected products. At present export subsidy expenditure in the European Union ($5.6 billion) is comfortably inside the total bound limit of $8.6 billion and could accommodate a reduction of 32 per cent in the total expenditure. However, several individual commodities are currently up against volume constraints, including beef, poultry, pigmeat, skim milk powder, wheat, coarse grains and rice. The EU proposes a 'substantial' but unspecified cut in export subsidy volumes. US expenditure is around $15 million, well within the limit.

The United States proposes, in addition to the elimination of export subsidies, that disciplines shall be placed on officially supported export credits, food aid and other forms of export support without specifying quantitative limits. Most of the export credits are provided by the US to their farmers. The EU proposes that the trade distorting elements of export credits for agricultural products should be identified and subjected to strict disciplines.

The Harbinson Proposal involves reduction of budgetary outlays and quantities to zero in developed countries within 6 years. For developing countries a much longer time period is proposed. Export credits shall be subject to disciplines.

Special and differential treatment
This issue is about a special and differential treatment of developing countries. In order to ensure that developing countries benefit from the expansion of world trade the proposals contain to a different extend more flexibility for developing countries.

The European Union proposal calls for developed countries to accept duty free all imports from least developing countries and 50 per cent of imports from developing countries. The European Union itself already meets this criterion. Among the major importers Japan would have the most difficulty meeting this standard as only a quarter of its imports from developing countries are duty free. Furthermore, the EU proposal calls for developing countries to be permitted reduced commitments if this is necessary for them to meet food security and other multifunctional objectives.

A further element adding to the complexity is the existence of preferential trade arrangements. Many developing countries, particularly those that were former colonies of current EU members, have preferential access to particular developed country markets. The superseded Lóme Convention between the European Union and the ACP countries is one well-known example.

A general reduction in tariffs erodes these preferences, and countries holding such preferences may not see it in their interests to press for further tariff reductions.

The US proposal involves no concrete suggestion concerning special and differential treatment. The US has is open to consider the desirability of modifying the agreed terms and conditions regarding exports from developing countries and providing exception provisions to meet emergency situations.

The Harbinson Proposal involves special and differential treatment on every above mentioning issue. In addition to that, developed countries should provide duty- and quota-free access to their markets for all imports from least developed countries. Furthermore, the declaration of strategic products for which developing countries do not have to reduce tariffs is proposed.

Non-trade concerns
The agriculture negotiations provide scope for governments to pursue "non-trade" concerns such as the environment, rural development, labour standard and food security. However, not all countries are ready to negotiate these "non-trade" issues. The US does not mention this issue at all and favours a narrow round excluding these issues.

The European Commission proposes that measures that are aimed at achieving certain societal goals such as the protection of the environment, traditional landscapes, rural development and animal welfare should be accommodated in the agreement on Agriculture. The Harbinson Proposal acknowledges non-trade concerns such as structural adjustments and animal welfare. Payments should be time limited.

These issues cannot be modelled with the partial equilibrium model that is used to assess the economic effects of the three proposals. Thus, this analysis focuses on tariffs, domestic support and export subsidies.

MODELLING AGRICULTURAL REFORM

UNCTAD's Agricultural Trade Policy Simulation Model (APTSM) is used to estimate the potential impacts of the EU and US proposals, assuming they were to be implemented as specified.[3] ATPSM is able to estimate the economic effects of changes in within-quota, applied and out-quota tariffs, import quotas, export subsidies and domestic support on production, consumption, prices, trade flows, trade revenues, quota rents, producer and consumer surplus and welfare.

The Uruguay Round reforms raised several modelling issues. Quotas on imports and export subsidies generate quotas rents of an estimated $10 billion and the need to assess the magnitude of the rents and their allocation.[4] It is assumed here that all the rent generated by the EU and US sugar policies is initially allocated to producers in exporting countries according to the distribution of trade.[5] Rents on sugar are estimated to be worth an estimated $790 million, of which $658 million goes to developing and least developed countries. Global rents forgone equate with rents receivable. That is, it is assumed that none of the rent is dissipated through rent seeking activities or inefficient means of quota administration. Rents are diminished as out-of-quota bound tariffs are reduced but producers are assumed not to respond to changes in rents.

A further simplifying assumption is that quotas are filled, either explicitly or through administrative constraints. This implies that in the model the applied tariff or out-of-quota tariffs, rather than the inquota tariff, drives the domestic prices. This further implies that changes in inquota tariffs do not have price and quantity effects, as these instruments are not binding. (They do, however, change the distribution of rents.)

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[3] ATPSM is a static, partial equilibrium global agricultural trade model with two way trade flows. An operational version of the model, associated database and documentation are available free of charge from UNCTAD (http://192.168.202.134/tab).
[4] This estimate assumes import quotas are filled.
[5] In a previous application of the model, reported in Vanzetti and Sharma (2002), it was assumed that the rent from all products went to producers, although this assumption is difficult to justify. The allocation of rents affects the distribution of gains from liberalisation. Here it is assumed that rents from products other than sugar are captured by importing countries.

A second difficult modelling issue concerns the decoupling of domestic support, that is, the production effects of changes in support. This is a complex issue concerning the method of administration, perceptions of risk, the wealth effects of direct payments and the likelihood of changes in government policies. In addition, there are potential problems of double counting in that if border support is removed, reducing domestic prices, there may be no role for domestic support. The approach taken here is to assume that most of the domestic support is decoupled or is conflated with border support.[6] Thus the additional effects of removing domestic support are minimal in most cases. This assumption may bias downwards the benefits from liberalisation.

A final observation relates to limitations modelling preferential access. Data on bilateral tariffs are not included in the database, although bilateral trade flows are available. Thus, it is not possible to liberalise on a bilateral basis and directly capture the effects of preference erosion as MFN rates are brought down closer to preferential rates held by many developing and all least developed countries. However, much of the effect of diminishing preferences is captured by the depletion of quota rents allocated initially to exporters. The model structure does not allow for trade diversion from changes in rents, but where the quotas are filled this effect will be minimal, at least for small changes in prices.

Country and commodity coverage
The present version of the model covers 160 individual countries plus one region, the European Union, which includes 15 countries (see appendix). Those countries not covered are mostly small island economies. Countries designated here as 'developed' are defined by the World Bank as high income countries with per capita GNP in excess of $9266 (World Bank 2001). A third group is the 49 least developed countries.

There are 36 commodities in the ATPSM data set. This includes many tropical commodities of interest to developing countries, although many of these have relatively little trade by comparison with some of the temperate products. Included commodities comprise meat, diary products, cereals, sugar, edible oils, vegetables, fruits, beverages, tobacco and cotton (see appendix).

Data
Volume data are from 2000 and are compiled from FAO supply utilisation accounts[7]. The year 2000 represents the base year for the model. The price data are also from FAO. Parameters on elasticities and feedshares are from FAO's World Food Model. These are based on a trawling of the literature and are not econometrically estimated specifically for the model. Some of the elasticities were modified by the authors where this was necessary.. Inquota tariffs, outquota tariffs and global quotas, notified to the WTO, are obtained from the AMAD database where available and aggregated to the ATPSM commodity level.[8] Export subsidy data are notified to the WTO. Bilateral trade flow data relate to 1995 and are from UNCTAD's Comtrade database. These are used to allocate global quotas to individual countries. The UNCTAD TRAINS database is the source of information on applied tariffs.

An indicator of the degree of distortion is the revenue raised or government expenditure outlaid on each commodity. These are a combination of the rate of support plus annual flows and are shown in table 1. It is apparent that most of the global protection in agriculture is on temperate products, particularly beef, wheat, maize, dairy products, vegetables oils and oilseeds. According to the ATPSM database, tariff revenues and rents for the products in the model amount to around $45 billion, with export subsidies and production distorting domestic support accounting for an additional $13 billion. Among the products that can be grown in tropical regions tobacco, sugar and poultry attract substantial protection. These products can also be grown in temperate regions or are close substitutes. There is relatively little tariff revenue raised on tropical products such as beverages (except chocolate) and cotton. For the products listed in table 1, tariff revenues amount to 17 per cent of import costs.

The European Union and Japan raise the largest amounts of agricultural tariff revenue (over $4 billion each) but several other countries account for over $1 billion annually. These are Mexico, Korea, United States, United Arab Emirates, Egypt and Turkey.

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[6] See de Gorter (1999) for a discussion of the methodological issues involved in measuring domestic support.
[7] See FAOSTAT at http://www.fao.org
[8] AMAD database http://www.amad.org

Indeed 50 countries gather in excess of $100 million annually in agricultural tariff revenues. This illustrates the scope for global reform rather than focusing on the European Union, the United States and Japan. However, tariff revenue makes a significant contribution to government finances in some countries and this source would need to be replaced if revenues fall following liberalisation.

The major commodities attracting export subsidies are wheat, beef, dairy products and sugar. Of the $7 billion attributed to commodities in the database, $5.4 billion is paid by the European Union, with the United States at $600 million responsible for much of the remainder.

The European Union ($2.3 billion) and Japan ($1.9 billion) also provide most of the domestic support that is considered in the ATPSM database to be production distorting. Once again the United States accounts for most of the remainder. Tobacco leaf, cotton, fresh milk and beef account for the largest slices of domestic support.

Table 1. Initial global tariff revenue and rents by commodity.

Commodity	Tariff revenue ($m)	Export subsidy expenditure ($m)	DOMESTIC SUPPORT EXPENDITURE ($M)	QUOTA RENT ($M)
Bovine meat	3360	1335	688	604
Sheepmeat	241	10	24	589
Pigmeat	615	284	68	66
Poultry	2183	169	12	165
Milk, fresh	87	0	692	2
Milk, conc.	1093	504	1	419
Butter	534	413	0	169
Cheese	1057	668	2	360
Wheat	1882	2242	234	2315
Rice	705	138	912	955
Barley	439	0	226	583
Maize	2652	96	326	2120
Sorghum	74	0	10	17
Pulses	338	0	73	1
Tomatoes	184	0	73	35
Roots & tubers	103	0	77	0
Apples	1119	0	18	15
Citrus fruits	537	0	265	15
Bananas	639	0	117	390
Other tropical fruits	251	0	0	0
Sugar	1850	719	120	789
Coffee green	576	0	13	3
Coffee roasted	20	0	0	0
Coffee extracts	7	0	0	0
Cocoa beans	61	0	0	0
Cocoa powder	44	0	0	0
Cocoa butter	48	0	0	0
Chocolate	1314	0	0	108
Tea	357	0	0	0
Tobacco leaves	2173	0	1698	20
Cigars	3684	0	0	0
Cigarettes	27	0	0	0
Other mfr tobacco	666	0	0	0
Oilseeds	2634	34	234	188
Cotton linters	288	0	536	29
Vegetable oils	2894	439	0	1
Total	**34736**	**7051**	**6419**	**9956**

Source: Derived from ATPSM database.

Finally, over 70 per cent of the global quota rents of $10 billion are generated within developed countries. Of the total rents $2.2 billion is assumed to find its way to developing country exporters. Quota rents on sugar are important in that the bulk of the rent accrues to developing countries. Mauritius, India and Fiji and Zimbabwe are the major beneficiaries. China is assumed to retain all the sugar quota rents generated through its recent accession to the WTO, as its import quota (1,945 kt) far exceeds its imports (647 kt).

In the absence of import quotas, tariff liberalisation leads to significant transfers between taxpayers, consumers and producers largely within one country. Where quota rents are generated, liberalisation may involve transfers between countries over and above the terms of trade effects.

Several modelling assumptions are important to note. First, ATPSM allows two way trade. This requires an additional equation to specify either exports of imports. In this version of the model the change in exports is in proportion to the initial ratio of exports to production. If fifty per cent of production is exported in the initial database, then fifty per cent of any additional production will be exported. This implies the percentage change in exports equals the percentage change in production. Imports are determined so as to clear the market, that is, supply plus imports equals demand plus exports.

As noted earlier, where producers receive rents they do not respond by changing quantities produced. This implies for example that changes in inquota tariffs change only quota rents, not quantities, prices or global welfare. The shifting of quota rents is a zero sum game.

The model does not have a specific time dimension. The general interpretation is that the economic effects are of a medium-term nature, with the impacts taking three to five years to work through.

Scenarios

Three simulations are undertaken to illustrate the potential impacts of the US, Harbinson and EU proposals. The proposals comprise many elements. Not all elements can be captured within ATPSM. For example the EU proposal comprises flexibility for tariff reductions so long as the average is 36 per cent. It is not possible to predict a priori which tariffs are reduced by less and which by more than 36 per cent. Another example is that the Harbinson proposal comprises strategic products to which a minimal cut applies. Therefore, the three simulations that capture important – but not all – elements of the three proposals are not exact simulations of the proposals.

Table 2. Alternative liberalisation scenarios.

Number	Label	Description
1	**Ambitious**	A reduction in applied out-quota tariffs according to the formula $t1=(t0*25)/(t0+25)$, elimination of inquota tariffs, a 20 per cent expansion of import quotas, elimination of domestic support and export subsidies in all countries and all commodities.
2	**Conservative**	A reduction in bound out-quota tariffs of 36 per cent, a 55 per cent reduction in domestic support and 45 per cent reduction of export subsidy equivalent in developed countries with two thirds of these cuts in developing countries. No reductions in least developed countries.
3	**Compromise**	A reduction in bound out-quota tariffs of 60 per cent where the initial tariff is higher than 90 per cent, 50 (initial tariff between 15 and 90), 40 (initial tariff smaller than 15), a 80 per cent reduction of export subsidies, a 60 per cent reduction of domestic support in developed countries. In developing countries: a 40 per cent reduction where the initial tariff are higher than 120 per cent, 35 (initial tariff between 60 and 120), 35 (initial tariff between 20 and 60), 25 (initial tariff smaller than 20), a 70 per cent reduction of export subsidies, a 20 per cent reduction of domestic support. A 20 per cent expansion of import quotas in developed and developing countries. No changes in least developed countries.

The ambitious scenario is relatively straightforward. The US proposal emphasises tariff cuts from applied rather than bound rates and with a Swiss formula coefficient of 25 per cent.

The conservative scenario is more problematic as the EU proposal is specified less definitively. First, specified reductions in bound rates apply to all commodities. Countries are assumed not to have flexibility to make lesser reductions in support to politically sensitive commodities, even though the EU proposal specifies this. In the conservative scenario, within-quota tariffs are only reduced if the out-quota or applied rate is cut to below the within-quota rate.

Likewise, in modelling the conservative scenario on export subsidies, it is assumed that the rates are binding and that countries do not take advantage of flexibility to vary the reductions across different commodities. This assumption thus overstates the likely impacts from reform. However, the EU has called for 'substantial 'reductions in export volumes, which may have a greater impact because many volume constraints are binding or close to it. Finally, while the EU proposal doesn't specify the special and differentiated conditions that apply to developing countries, they are interpreted here as similar to the Uruguay Round conditions.

The compromise scenario is even more problematic. In the Harbinson proposal countries have the flexibility to reduce certain tariff lines by a minimum amount whenever the average equals the above stated reductions. Developing countries can declare some commodities as strategic products for which no reductions are required. The proposal includes the flexibility to reduce export subsidies in different steps. The proposed expansion of import quotas depends on current quotas and countries have some flexibility as an average expansion within certain limits is considered. Furthermore, a possibility to assure preferential schemes and several other special and differential treatment issues are proposed. Since it is not possible to model all the elements of the Harbinson proposal, the compromise simulation is only similar to the proposal capturing important, but not all, aspects.

RESULTS

Impacts of the compromise, ambitious and conservative proposals are assessed in terms of prices, government and export revenue effects and national welfare. Commodity prices are examined first.

Table 3. Increases in world prices from alternative scenarios.

	Ambitious %	Compromise %	Conservative %
Bovine meat	8	5	3
Sheepmeat	11	6	4
Pigmeat	5	3	2
Poultry	7	3	2
Milk, fresh	11	7	4
Milk, conc.	19	12	7
Butter	25	18	11
Cheese	16	12	7
Wheat	14	10	5
Rice	3	2	1
Barley	3	1	1
Maize	5	3	2
Sorghum	1	0	0
Pulses	5	1	1
Tomatoes	3	2	2
Roots & tubers	4	1	1
Apples	4	3	2
Citrus fruits	2	1	1
Bananas	2	1	1
Other tropical fruits	4	1	1

Table 3. continued.

Sugar	11	6	3
Coffee green	1	1	0
Coffee roasted	1	0	0
Coffee extracts	7	0	0
Cocoa beans	1	0	0
Cocoa powder	2	1	1
Cocoa butter	1	1	1
Chocolate	6	5	3
Tea	5	2	1
Tobacco leaves	4	2	2
Cigars	6	3	2
Cigarettes	2	2	1
Other mfr tobacco	14	7	5
Oilseeds	2	1	1
Cotton linters	2	1	1
Vegetable oils	8	2	1

Source: ATPSM simulations.

Prices

Comparing world prices across the commodities confirms that the more highly protected sectors dairy products, sheepmeat, sugar, beef and vegetable oils are most affected in all scenarios. Price changes are lower for tropical than temperate products. Comparing across scenarios, increases in world prices for the conservative simulation are about a third of the ambitious simulation, with a trade-weighted average of 2.2 per cent compared with 6.0 per cent. The trade weighted average increase under the compromise proposal is 4.0 per cent. Under the conservative and compromise scenarios there are many markets in which there are no tariff cuts because of the divergence between applied and bound rates. For example, US beef has an out-quota tariff of 11 per cent and an applied rate of 2.6. A 36 or 60 per cent cut in the bound rate would not increase trade flows. Across all 4263 markets with positive tariffs in the model, actual tariffs are reduced in 1680 under the conservative scenario and in all cases under the ambitious proposal.

Government 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. Many developing countries would have to raise taxes on income, profits, capital gains, property, labour, 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. It may be that in small countries where most goods are imported that imposing, say, a sales or consumption tax would in fact operate essentially against imports. In such a case the essential difference is that a domestic tax would not be subject to WTO negotiations, while revenues would be unchanged and come from the same source.

The simulation results indicate the ambitious scenario would result in an estimated 26 per cent decline in global revenues from agricultural trade (see table 4). Included in government revenues is the reduction in expenditure from the elimination of $7 billion in export subsidy expenditure and a $6 billion reduction in domestic support. The conservative scenario, which features moderate (36 per cent on bound rates) tariff cuts and smaller (45 per cent) export subsidy reductions, results in an increase in government revenues in developed countries and only a marginal impact on developing and least developed countries as a group. Among developed countries the major beneficiary is the European Union where net government revenues increase $6.7 billion thanks to a $3.5 billion increase in tariff revenue and a reduction of $2.4 billion in export subsidy expenditure. Tariff revenues rise because of the increase in trade flows. For example, tariff revenues on EU beef imports rise from $771 million in the base period to $1996 million even though the tariff has gone from 138 to 88 per cent. Imports increase from 407 kt to 1138 kt. This is driven by a 3 per cent fall in production and a 7 per cent increase in consumption in response to an 18 per cent fall in domestic prices.

Similar effects occur in other countries, depending on the domestic price changes and the supply and demand elasticities. The revenue effects are not evenly distributed. Of the 161 countries in the model only 37 experience a gain in government revenues. The compromise simulation results in a global government revenue increase of 22 per cent. There is almost no change for developing and least developed countries and a relatively high increase in developed countries.

Table 4. Changes in government revenues relative to base from alternative scenarios.

	Ambitious		Compromise		Conservative	
	$m	%	$m	%	$m	%
Developed	1237	12	7406	72	7530	73
Developing	-9183	-45	-337	-2	-291	-1
Least Developed	-463	-30	-48	-3	-36	-2
World	**-8409**	**-26**	**7020**	**22**	**7203**	**22**

Source: ATPSM simulations.

Export revenues
The change in export revenues is possibly the variable of most interest to negotiators. The estimated impacts of the two scenarios on export revenues are shown in table 5.

Table 5. Increase in export revenues relative to base from alternative scenarios.

	Ambitious		Compromise		Conservative	
	$m	%	$m	%	$m	%
Developed	13329	14	6995	7	4321	4
Developing	28434	30	15071	16	9596	10
Least Developed	1972	48	1106	27	773	19
World	**43736**	**22**	**23172**	**12**	**14690**	**7**

Source: ATPSM simulations.

It is not surprising that export revenues rise as the increase in imports following trade liberalisation has to come from somewhere. The real interest is in the magnitude and distribution of the revenue gains. In interpreting these results, it should be remembered that an underlying assumption of the model is that the ratio of exports to production is maintained. This means that most of the increase in exports is likely to come from the largest producing countries. Whether this will bias the results in one way or the other is not clear. However, because of supply constraints this assumption seems not unreasonable. Looking at the table 5 the most obvious point for the country groups is that, as expected, trade effects are about three times higher under the ambitious than under the conservative scenario. Export revenue increase under the compromise scenario lies between the other scenarios. Initial global export revenues in the database are $197 billion. This figure increases by 7 per cent under the conservative scenario, 22 per cent following the ambitious and 12 per cent following the compromise scenario. For all individual countries and individual commodities trade effects are positive and greater under the more ambitious proposals. Export revenue is estimated to increase even for the European Union (by 6 per cent under the ambitious scenario) where export subsidies are removed. However, export revenues in the European Union decline for several cereals, fruits, and vegetables.

Welfare
The static annual global welfare gains are estimated at around $26 billion under the ambitious scenario, $18 billion under the compromise scenario and $12 billion under the conservative scenario. In all three cases the bulk of the gains accrue to developed countries because the bulk of the protection is on temperate products in these countries. It is noticeable that developing countries as a group gain only marginally from modest liberalisation and the 49 least developed countries lose as a group. However, both groups gain substantially more from the more ambitious liberalisation under the ambitious scenario.

Developing countries share a greater proportion of the global welfare gains under the ambitious scenario because they are making more substantial cuts.

In the compromise and the conservative scenarios developing countries make reductions to a lesser extent and these cuts are from bound rather than applied rates. With a 24 per cent cut as in the conservative scenario or an average reduction of 32.5 per cent as in the compromise scenario in bound tariffs many applied tariffs are unchanged.

Under the conservative scenario, the gains to developing countries through improved market access and allocative efficiency effects are almost offset by the removal of export subsidies and world price raises. The least developed countries, which do not liberalise and have no efficiency gains, loose $262 million.[9] With greater liberalisation under the other scenarios, the benefits of domestic reform and improved market access begin to outweigh the negative effects of export subsidy removal.

A further contribution to losses in some developing countries is the fall in quota rents received on exports of sugar. According to the model database, quota rents on sugar imports of $505 million and $212 million are generated by the European Union and the United States respectively. All of this is assumed to accrue to exporting country producers, $640 million in developing countries and $15 million in least developed countries.[10] The remainder finds its way to other developed countries such as Australia. Tariff reform lowers these rents. Quota rents received are reduced from $717 million to $473 million under the conservative, $376 million under the compromise and $183 million under the ambitious scenario. These reductions are effectively a transfer from foreign producers to EU and US consumers. The reduction in quota rents, essentially a transfer from governments to consumers, is higher under the ambitious scenario than under the conservative scenario.

Table 6. Changes in welfare relative to base from alternative scenarios ($m).

	Ambitious $m	Compromise $m	Conservative $m
Developed	19394	17735	12262
Developing	5516	336	96
Least Developed	856	-425	-262
World	25766	17645	12096

Source: ATPSM simulations.

Individual country winners and losers are shown in table 7. From medium liberalisation (compromise scenario), at least using the standard welfare measures, the main winners in absolute terms are the European Union ($10.4 billion), Japan ($2.4 billion) and the United States ($1.0 billion). Among the developing countries the greatest gains accrue to Romania ($567 million), Argentina ($374 million), Turkey ($279 million) and Morocco ($180 million). However, there are numerous losers among developing countries. In fact 58 of the 161 countries in the model appear to gain from global liberalisation under the compromise scenario. This is because many are disadvantaged by rising world prices and loss of quota rents. The most notable losers are Russia ($278 million), Algeria ($153 million) and Iran ($138 million). Among the least developed countries the major loser is Bangladesh ($57 million). A total of $2.5 billion would need to be put aside to compensate all the losing countries. Under the conservative scenario, compensation for the 106 (=161-55) losing countries needs to be around $1.9 billion. Under the ambitious scenario, however, 74 countries are estimated to gain in terms of welfare, but for some individual countries the losses are greater. The cumulative losses amount to $3.0 billion.

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[9] To isolate the impact of export subsidies and domestic support alone, a separate simulation was undertaken in which export subsidies were reduced by 80 per cent in developed and 70 per cent in developing countries and domestic support by 60 / 20 per cent. Developing and least developed countries would lose $1.2 billion and $241 million respectively, while developed countries gain $10.5 billion. The vast bulk of these gains, $8.7 billion, accrue to the European Union.

[10] Except for China as stated above.

Table 7. Changes in welfare relative to base for individual countries.

	Ambitious $m	Compromise $m	Conservative $m		Ambitious $m	Compromise $m	Conservative $m
Afghanistan	-16	-10	-7	Latvia	-8	-6	-4
Albania	-21	-12	-8	Lebanon	11	10	11
Algeria	-249	-153	-80	Lesotho	58	-11	-7
Angola	43	-23	-15	Liberia	-4	-3	-2
Argentina	780	374	214	Libya	-27	-19	-7
Armenia	-25	-15	-9	Lithuania	32	21	11
Australia	1307	810	478	Macao	-6	-3	-2
Azerbaijan	-24	-16	-10	Macedonia	-4	-3	0
Bahamas	-4	-2	-1	Madagascar	-6	-4	-3
Bangladesh	-83	-57	-37	Malawi	16	4	7
Barbados	-15	-11	-8	Malaysia	399	24	24
Belarus	-24	-12	-9	Maldives	-3	-2	-1
Belize	-13	-11	-8	Mali	8	3	3
Benin	-5	-5	-3	Malta	-10	-7	-4
Bolivia	-6	-10	-6	Mauritania	-13	-8	-5
Bosnia Herzegovina	-33	-20	-13	Mauritius	-95	-71	-51
Botswana	6	4	3	Mexico	1295	-15	-286
Brazil	283	20	6	Moldova	5	2	1
Brunei	-4	-2	-1	Mongolia	-1	-1	-1
Bulgaria	56	36	26	Morocco	328	180	126
Burkina Faso	1	0	0	Mozambique	1	-11	-6
Burundi	32	-1	-1	Myanmar	345	-17	-12
Cambodia	-19	-11	-7	Namibia	14	9	5
Cameroon	-1	-6	-3	Nepal	-7	-4	-3
Canada	1171	771	293	Neth. Antilles	-6	-4	-2
Cape Verde	-3	-2	-1	New Zealand	741	480	288
Central African Rep.	-1	-2	-1	Nicaragua	11	4	2
Chad	5	0	0	Niger	-7	-4	-3
Chile	-33	-24	-12	Nigeria	39	-85	-53
China	84	51	154	Norway	829	763	529
Colombia	72	-20	-26	Pakistan	61	-63	-50
Comoros	-1	-1	0	Panama	-5	-5	-3
Congo	-11	-7	-4	Papua New G.	23	-2	-1
Congo Dem. Rep.	603	-17	-11	Paraguay	9	0	0
Costa Rica	26	10	8	Peru	-45	-33	-16
Croatia	-3	-1	-1	Philippines	-35	-71	-25
Cuba	14	-3	-6	Poland	176	9	-41
Cyprus	188	183	141	Romania	1019	567	372
Czech Rep.	86	60	36	Russia	-523	-278	-183
Djibouti	-2	-6	-3	Rwanda	-1	0	0
Dominica	-1	0	0	Sao Tome	0	0	0
Dominican Rep.	-5	-1	1	Saudi Arabia	-230	-120	-79
Ecuador	16	5	5	Senegal	-16	-12	-7
Egypt	16	30	55	Seychelles	-1	-1	0
El Salvador	-19	-15	-10	Sierra Leone	1	-4	-2
Eritrea	-7	-4	-3	Slovakia	0	2	3

Table 7. continued.

Estonia	3	2	1	Slovenia	-9	0	1
Ethiopia	-23	-18	-10	Solomon Isla.	3	0	0
European Union	10203	10370	7222	Somalia	-1	-1	0
Fiji	-67	-51	-36	South Africa	23	-28	-21
French Polynesia	-7	-4	-3	Sri Lanka	-28	-35	-20
Gabon	-7	-5	-3	St. Lucia	-2	-1	-1
Gambia	11	-5	-3	St. Vincent	-1	-1	0
Georgia	-30	-18	-11	Sudan	-6	-8	-5
Ghana	-8	-8	-4	Suriname	-3	-2	-1
Grenada	-2	-1	-1	Swaziland	20	9	5
Guatemala	28	5	3	Switzerland	332	291	214
Guinea	19	-14	-9	Syria	-12	-8	-5
Guinea Bissau	-1	-1	-1	Taiwan	-137	-63	-39
Guyana	-32	-25	-18	Tajikistan	-14	-9	-5
Haiti	-12	-13	-8	Tanzania	-2	-8	-3
Honduras	-3	-6	-3	Thailand	245	152	107
Hong Kong	-174	-87	-58	Togo	-2	-2	-1
Hungary	135	89	58	Trinidad Tob.	-11	-10	-6
Iceland	103	104	91	Tunisia	-48	-38	-24
India	1411	22	5	Turkey	400	279	180
Indonesia	62	-98	-57	Turkmenistan	-5	-6	-3
Iran	-219	-138	-84	U. A. Emirates	17	62	50
Iraq	-113	-70	-42	Uganda	5	0	1
Israel	553	530	392	Ukraine	163	98	73
Ivory Coast	0	-11	-4	United States	1713	1021	748
Jamaica	-51	-40	-27	Uruguay	87	53	32
Japan	2526	2440	1868	Uzbekistan	-12	-15	-6
Jordan	-49	-28	-17	Vanuatu	0	0	0
Kazakhstan	103	73	40	Venezuela	-91	-65	-43
Kenya	15	-12	-9	Viet Nam	39	21	21
Korea DPR	-29	-18	-11	Yemen	-103	-61	-37
Korea Rep.	226	-107	-76	Yugoslavia	34	20	20
Kuwait	54	72	52	Zambia	4	0	0
Kyrgyzstan	11	3	3	Zimbabwe	0	-21	-15
Laos	5	-2	-1	**World**	**25766**	**17645**	**12096**

Source: ATPSM simulations.

Table 8. Distributional effects: Changes in consumer surplus.

	Ambitious $m	Compromise $m	Conservative $m
Developed	77379	59970	33788
Developing	4996	-16148	-9309
Least Developed	3879	-2666	-1793
World	**86254**	**41156**	**22686**

Source: ATPSM simulations.

The source for gains in developed countries is mainly consumer surplus (Table 8).

Under the compromise and the conservative scenario consumers in developing and least developed countries are estimated to be worse off since these country groups liberalize only to a small extend but are hit by increasing commodity prices. Under the ambitious scenario all groups are estimated to gain.

Finally, on the subject of welfare, producers in developed countries lose from trade liberalisation but those in developing countries gain around $10 billion in the conservative and ambitious scenarios (table 9). Under the compromise scenario developing countries' producers gain about $17 billion. Requiring an explanation is the loss to producers in least developing countries under the ambitious scenario, reversing the result for the conservative and the compromise scenarios. This loss can be attributed mainly to a fall in production in the roots and tubers sector in the Congo Democratic Republic, where an initial applied tariff of 100 per cent is reduced to 20 per cent under the Swiss formula. The consequent 38 per cent reduction in domestic prices leads production to fall 11 per cent from 16 million tonnes and a decrease in producer surplus of $1.9 billion. Neither under the conservative nor under the compromise scenario are applied tariffs changing in this country and producers gain slightly from the rise in world prices.

Table 9. Distributional effects: Changes in producer surplus.

	Ambitious $m	Compromise $m	Conservative $m
Developed	-59222	-49'640	-29057
Developing	9703	16'821	9696
Least Developed	-2560	2'288	1568
World	**-52078**	**-30'531**	**-17793**

Source: ATPSM simulations.

LIMITATIONS, IMPLICATIONS AND CONCLUSIONS

There remains considerable uncertainty whether either the EU or US proposals could be successfully negotiated and implemented, but assuming this was to happen, should developing countries support the conservative EU proposal for agricultural reform, the more ambitious US proposal or the intermediate Harbinson proposal? The ambitious proposal generates more static gains, $26 billion as opposed to $12 billion or $18 billion, but also more losses to the fewer countries that do lose. In addition to higher tariff cuts the ambitious scenario has a greater emphasis on removing export subsidies than the conservative alternative. The bulk of the welfare gains from reforming export subsidies go to the European Union with some going to developing country exporters while importing countries are adversely affected by rising prices. Individual countries are affected in different ways, depending on the current trade flows and specific levels of protection, and need to make an individual assessment of the impacts of alternative scenarios.

The results imply that developing countries must undertake some liberalisation themselves if they are to gain significant benefits. The advantages of improved market access in developed countries in the agriculture sector are relatively slight because most of the reform is in the dairy and livestock sector in which developing countries tend not to have a comparative advantage. Two exceptions are sugar where liberalisation leads to the erosion of quota rents currently accruing to many developing countries, and tobacco where tariffs may be seen in some countries as an instrument of social policy.

The ambitious scenario has the characteristic of using applied rates as a basis and of addressing tariff peaks. However, negotiations have historically been based on bound rates and it is difficult to see this changing. Tackling the high tariffs first makes economic sense from a global point of view, but as it is developing countries that currently have the highest tariffs this approach contradicts the need to provide developing countries with special and differentiated treatment. It can be argued that negotiations should be about bound rates in order to acknowledge unilateral reductions of applied tariff rates. This objection, however, can be easily met by reducing applied rates from an historical base, such as 1990, to give credit for more recent reductions.

Our conclusions are based on three scenarios that capture most – but not all - important elements of the US, EU and Harbinson proposals. The Harbinson proposal in particular comprises many special and differential treatment elements that can for technical reasons not be captured by ATPSM. In particular no account has been taken of strategic products, the provision that allows countries to reduce some tariffs by only 10 per cent. Nonetheless, we believe the results provide a useful indicator as to the relative impacts of the alternative proposals.

Further limitations of the analysis should be noted. The key inadequacy is the lack of knowledge of the distribution of quota rents. It is assumed here that only sugar rents accrue to exporters. This assumption probably biases upwards the welfare gains from MFN liberalisation to developing countries, as liberalisation erodes quota rents. If in fact quota rents on bananas currently accrues to developing countries, these will be reduced following trade reforms.

A further assumption that overstates the benefits of liberalisation, this time in favour of developed countries, is the view that the higher out-quota tariffs determines domestic prices, in spite of the number of observed unfilled import quotas.

Limitations applicable to all models of this nature should be observed. The estimated annual gains are static rather than dynamic, and there is no attempt to account for the one-off costs of moving labour and capital from declining to expanding sectors. Intersectoral and macroeconomic effects are not considered. Finally, data quality is an issue, especially when considering the results for a particular country or sector.

In spite of these limitations, the results provide an indication of the likely nature of the impacts of alternative liberalisation scenarios on a country by country basis. This enables individual country negotiators to determine how their country may be affected by specific proposals. All of the proposals analysed here suggest that there are net gains, and every country can share in these if they are distributed appropriately. With so many individual countries adversely affected from rising prices, it would be difficult for the WTO to reach a consensus on reform through agricultural negotiations alone. This points to the need to broaden the negotiations, to consider some form of compensation and to ensure social safety nets are in place as best as possible.

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APPENDIX

Country coverage in ATPSM

Developed	Developing	Developing (cont.)	Least developed
Australia	Albania	Latvia	Afghanistan
Brunei	Algeria	Lebanon	Angola
Canada	Argentina	Libya	Bangladesh
China Hong Kong	Armenia	Lithuania	Benin
China Taiwan	Azerbaijan	Macedonia	Burkina Faso
Cyprus	Bahamas	Madagascar	Burundi
European Union	Barbados	Malawi	Central African Rep.
French Polynesia	Belarus	Malaysia	Cambodia
Iceland	Belize	Malta	Cape Verde
Israel	Bolivia	Mauritius	Comoros
Japan	Bosnia Herzegovina	Mexico	Congo
Kuwait	Botswana	Moldova	Congo Dem. Rep.
Macao	Brazil	Mongolia	Djibouti
Neth.Antilles	Bulgaria	Morocco	Eritrea
New Zealand	Cameroon	Namibia	Ethiopia
Norway	Chad	Nicaragua	Gambia
Slovenia	Chile	Nigeria	Guinea
Switzerland	China	Pakistan	Guinea Bissau
U. A. Emirates	Colombia	Panama	Haiti
United States	Costa Rica	Papua New Guinea	Lao PDR
	Croatia	Paraguay	Lesotho
	Cuba	Peru	Liberia
	Czech Rep.	Philippines	Maldives
	Dominica	Poland	Mali
	Dominican Rep.	Romania	Mauritania
	Ecuador	Russia	Mozambique
	Egypt	Saudi Arabia	Myanmar
	El Salvador	Seychelles	Nepal
	Estonia	Slovakia	Niger
	Fiji	South Africa	Rwanda
	Gabon	Sri Lanka	Sao Tome
	Georgia	St. Lucia	Senegal
	Ghana	St. Vincent	Sierra Leone
	Grenada	Suriname	Solomon Islands
	Guatemala	Swaziland	Somalia
	Guyana	Syria	Tanzania
	Honduras	Tajikistan	Togo
	Hungary	Thailand	Uganda
	India	Trinidad Tobago	Vanuatu
	Indonesia	Tunisia	Yemen
	Iran	Turkey	Zambia
	Iraq	Turkmenistan	
	Ivory Coast	Ukraine	
	Jamaica	Uruguay	
	Jordan	Uzbekistan	
	Kazakhstan	Venezuela	
	Kenya	Viet Nam	
	Korea DPR	Yugoslavia	
	Korea Rep.	Zimbabwe	
	Kyrgyzstan		

Note: Among the 49 least developed countries, Bhutan, Chad, Equatorial Guinea, Kiribati, Madagascar, Malawi, Samoa, Somalia, Sudan, Togo and Tuvalu are not included in the model.

Commodities in ATPSM.

Meat	**Vegetables**
01100 Bovine meat	05420 Pulses
01210 Sheepmeat	05480 Roots, tubers
01220 Pigmeat	05440 Tomatoes
01230 Poultry	**Fruit**
Dairy products	05700 Apples & pears
02212 Milk, fresh	05710 Citrus fruits
02222 Milk, conc.	05730 Bananas
02300 Butter	05790 Other tropical fruits
02400 Cheese	**Beverages**
Cereals	07110 Coffee green bags
04100 Wheat	07120 Coffee roasted
04400 Maize	07131 Coffee extracts
04530 Sorghum	07210 Cocoa beans
04300 Barley	07240 Cocoa butter
04200 Rice	07220 Cocoa powder
Sugar	07300 Chocolate
06100 Sugar	07410 Tea
Oils	**Tobacco and cotton**
22100 Oil seeds	12100 Tobacco leaves
42000 Vegetable oils	12210 Cigars
	12220 Cigarettes
	12230 Other tobacco - mfr.
	26300 Cotton linters