

# **THE CURRENT ROUND OF AGRICULTURAL TRADE NEGOTIATIONS: WHY BOTHER ABOUT DOMESTIC SUPPORT?\***

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## **SUMMARY**

The current WTO agricultural trade negotiations began in March 2000. The previous Round reached agreements in the areas of market access, export competition and domestic support. One possibility is for the current Round to seek agreements under similar headings. Reaching agreement over reductions in domestic support to farmers is complicated by a number of factors, such as the extent to which such support impacts on production decisions, the wishes of governments to support farmers for pursuing multifunctional outcomes from agriculture, and the categorisation of a myriad of policy instruments into green, blue and amber boxes. It therefore poses the risk of considerably extending the negotiations and diverting attention away from other areas of reform. The sustainability of many domestic support policies requires imposition of trade barriers. Therefore reform of trade barriers may force governments into reforming domestic support without requiring specific international agreements. The paper continues with quantitative assessments, using the GTAP applied general equilibrium model. Trade reform scenarios are analysed, with and without specific reductions in domestic support. This illustrates the extent to which government domestic support spending might have to increase to compensate farmers when trade barriers are lowered, if current output levels are to be maintained. A conclusion is that trade expansion and welfare gains can be achieved even when domestic support is excluded from the multilateral agreement. This would require some countries to significantly expand domestic support expenditures – to the extent that this is unlikely, trade and welfare gains would be further enhanced.

Keywords: WTO, trade reform, domestic support

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## INTRODUCTION

The Uruguay Round Agreement on Agriculture (URAA) grouped reform commitments under the major headings of market access, export competition and domestic support. Inclusion of the latter was an important breakthrough, since it indicated recognition that domestic agricultural policies do link to international trade. However, there is wide agreement that the agreed reductions in domestic support in the URAA have been the least effective in contributing to any subsequent liberalisation of global food and agricultural markets. There are several reasons for this.

While the URAA specified 20% reductions in domestic support expenditures from an agreed base (13.3% for developing countries), as calculated in the Aggregate Measurement of Support (AMS), qualifying policy instruments were grouped into three categories (the 'amber', 'blue' and 'green' boxes) depending upon their perceived abilities to impact on production and to distort trade flows. The agreed expenditure reduction applied only to those expenditures included in the amber box (such as market price support and input subsidies), and with few exceptions countries have adjusted their domestic support policies so as to comply with this Agreement. In addition to the policy-switching that took place, the general achievement of country commitments was facilitated by the fact that the 1986-88 base period was a period of extremely high domestic support. However over 60% of domestic support in OECD countries falls outside the amber classification and has therefore been exempt from the reduction commitments, and overall levels of domestic support in OECD countries have remained high (Figures 1 and 2).

A contributing factor to this outcome was the invention of the blue box towards the end of the Uruguay Round, allowing the EU and USA to exempt their major domestic support programmes from cuts. These are payments associated with production-limiting programmes where payments are based on fixed crop areas and yields, or fixed livestock numbers. While such exemptions have been claimed mainly by the EU and USA, in early 2001 Japan claimed blue box exemption for certain support to rice from 1998, referring to policy changes that would allow it not to measure in the AMS considerable support previously notified as market price support (Kennedy *et al.* 2001).

While the AMS was calculated on a product-by-product basis, it was the *sum* of those expenditures that was to be reduced. Hence countries faced the possibility of making larger cuts in support to non-sensitive sectors allowing support levels to be maintained or even increased in the more politically-sensitive sectors. Also, the *de minimus* provision allowed the exclusion from the AMS of domestic commodity support that comprised less than 5% of the total production value of the relevant commodity (10% for developing countries).

Qualifying for the green box, and therefore exemption from reductions, are expenditures associated with programmes that have no, or at most minimal, trade-distorting effects or impacts on production. These include such instruments as government-funded general services, direct payments to producers, and payments associated with income insurance, disaster relief, environmental programmes and structural adjustment. Developing countries have been able to include a somewhat larger set of policies in the green box. The question of whether all payments reported in the green box have few or no production or trade effects requires further investigation (OECD 2001). In the 1986-88 base period, domestic support was dominated by amber box measures. During the implementation period, however, green box expenditures increased as amber box measures declined. For the OECD countries as a whole, green box spending was around one-quarter of total domestic support in the base period, but had increased to almost half by 1996 (OECD 2001).

The UR agreement on domestic support measures has been successful to the extent that countries have reformed some policies and have shifted their support emphasis from the amber box instruments to those of the blue and green boxes. This should have reduced somewhat the production and trade distortions due to domestic farm supports. However, the overall level of domestic support has in some countries actually increased. For example, domestic support levels in the EU and USA were higher in the late 1990s than in the 1986-88 base period. In the EU and USA, not only has the total PSE increased from 1986-88 to 1997-99, but the share of domestic support spending in the PSE has also risen (Figures 1 and 2). Domestic agricultural support payments remain concentrated in the EU, Japan and USA, together accounting for over 90% of total domestic support for the OECD as a whole (OECD 2001). Some would also argue that the green box policies, as defined by current criteria, do in some cases result in production and/or trade distortions.

#### THE CURRENT AGRICULTURAL NEGOTIATIONS & DOMESTIC SUPPORT

A new Round of agricultural trade negotiations began in March, 2000. In the first phase, which ended in March 2001, there were 44 proposals and technical papers from 125 countries<sup>1</sup>. Positions taken by some countries reflect recent policy changes. The 1996 US FAIR Act replaced target prices, deficiency payments and set-aside with Production Flexibility Contracts and associated direct payments to farmers<sup>2</sup>. A consequence was that the US could move its main crop payments from the blue to the green box, leaving the EU and Japan as the major players proposing a continuation of the blue box. The EU's reforms of Agenda 2000 included a continuation of previous reductions in support prices and continued use of direct payments to compensate farmers for reductions in price support. Such payments remain exempt from cuts so long as the blue box is retained. Agenda 2000 also introduced the concept of 'multifunctionality'. This argues that farming produces outputs in addition to food and fibre, such as environmental protection and enhancement, and increased vitality of rural areas, and that domestic support payments are justified for the provision of such externalities. Japan (in 1999) and South Korea (in 2000) have both introduced new agricultural laws that emphasise the multifunctional nature of agriculture. In both countries, greater emphasis is now placed on maintaining farm incomes through direct payments rather than price support.

WTO member countries face basically two choices in their negotiations over domestic support. The first is whether to categorise support instruments into various "boxes", and the second is the scope of reduction of such support. Regarding the first of these, several developing countries propose no categorisation, but that the total domestic support of industrial countries be capped. While some members (as indicated above) argue for the retention of the blue box, the USA proposes just two categories of support instruments - "exempt" and "non-exempt" - with the former having no, or at most, minimal, trade distorting effects.

A number of modalities have been proposed for reducing the level of domestic support. The Cairns Group proposes a formula approach that through major reductions in support would eventually lead to the elimination of amber and blue box programmes. The EU and Japan, in addition to the retention of the green and blue boxes, propose further reduction in amber box payments using the final levels bound in the URAA as the starting point. The USA proposal for reducing amber box support also starts with the levels bound in the URAA, but reductions would be such that non-exempt support would be reduced to a fixed percentage of the member's value of total agricultural production in some base period. Japan's proposal labels such a procedure as "unreasonable".

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<sup>1</sup> These can be viewed on the WTO website, <http://www.wto.org>.

<sup>2</sup> Large *ad hoc* emergency payments were made to US farmers in 1998 and 1999. They have as yet to be notified to the WTO and it is unclear whether they will all qualify for a 'green' classification.

While most countries support the continuation of green box measures, there seems little doubt that one of the thorniest negotiating issues will be accommodation of the non-trade concerns of several member countries – the so-called multifunctionality issues. In particular, better definitions are required of minimally-trade-distorting policies that might be used by countries in their pursuit of important societal objectives. Korea proposes that the scope and criteria of the green box be adjusted so as to reflect the multifunctionality of agriculture, for example by including compensatory supports for multifunctionality. The EU proposes that measures aimed at protecting the environment, rural vitality and poverty alleviation should be accommodated. Several other countries have also noted the right of members to address non-trade concerns, provided this is achieved in minimally-trade-distorting ways. In contrast, ASEAN has suggested an overall cap on developed country expenditures on total green box supports.

Reaching political agreement on multifunctionality and other green box concerns would seem to require, *inter alia*, additional and probably rather complex political and economic analyses. What *is* an acceptable minimum level of trade distortion? How *do* various ‘multifunctional’ programmes impact on production? *Should* we be concerned if an efficient public policy to provide a positive externality increases farm output as a by-product? And more generally in regard to green box policies, what is the nature of “de-coupling”? Given that farmers are generally risk-averse, even apparently fully-decoupled direct payments to reduce risk or to compensate for climatic disasters would appear to have some impact on production. Tying direct payments to past levels of inputs or outputs may impact current farm decisions since they may influence expected future returns. Direct payments may also influence future output through new investments, or may protect some farm businesses from bankruptcy.

Since domestic support forms part of the current agricultural trade negotiations, the above conflicting positions and analytical complexities are likely to prolong the negotiations, and perhaps even pose a threat to a successful completion that would incorporate a meaningful liberalisation of agricultural trade. This raises the question of whether a meaningful outcome could be agreed if the whole issue of domestic support was left out of the negotiations (Blandford 2001). This is the subject of the remainder of this paper. The next section briefly outlines the linkages between domestic support and border (trade) protection. A quantitative analysis of some possibilities then follows, in an effort to quantify the extent to which the benefits of trade liberalisation might be curtailed should domestic support be omitted from the final agreement.

#### LINKAGES BETWEEN DOMESTIC SUPPORT AND TRADE POLICIES

The linkage between the levels of border protection and domestic support payments is shown in Figure 3. The left panel shows supply, demand and prices in the domestic market for some commodity, while the right panel depicts the parallel quantities and prices in the international market.  $D_d$  and  $S_d$  are the domestic demand and supply curves, respectively. Imagine the government wishes to support producer prices at the level  $PS$ , so the resultant domestic output is  $S$ . This could be achieved with a deficiency payment, for example, equal to the difference between the support price and the domestic market price. Such a domestic support policy would qualify for the WTO amber box. The government also imposes a tariff on imports of the commodity, equal to the difference between the market price ( $PM_1$ ) and the price at the border ( $PW_1$ ).  $D_1$  is therefore the level of domestic demand, and imports are given by the distance between  $D_1$  and  $S$ . This is equivalent to the amount  $M_1$  in the right panel. There,  $D_x$  and  $S_x$  are the excess demand and supply curves, respectively. Note that the excess demand curve has a kink at the price  $PS$ .

Now imagine that a reduction in the import tariff is negotiated in the WTO, so that price in the domestic market falls to  $PM_2$  and demand rises to  $D_2$ . Also imagine that *no* disciplines on domestic support are agreed. Government could then maintain producer prices at the level

PS, if that was thought necessary to help achieve its domestic objectives such as the supply of multifunctional outputs. In this case imports would increase to  $M2 (D2 - S)$  and the world price rises to  $PW2$ . The new (lowered) tariff is therefore  $PM2 - PW2$ . However, government would find it necessary to *increase* its domestic support expenditures from  $(PS-PM1)*S$  to  $(PS-PM2)*S$ . Whether they would decide to do so would depend upon domestic politics, public spending priorities and the state of the government budget. But it is conceivable that for whatever reason, the support price  $PS$  and therefore total domestic support would in fact be lowered, even though domestic support disciplines *were not part* of the agricultural agreement. Hence import volumes and world prices would rise by more than would have resulted from the negotiated tariff reduction alone.

In the quantitative work that follows, we aim to measure the extent to which selected countries' domestic support expenditures would increase should they choose to maintain existing support prices in the face of reductions in border protection. We also compare the extent of market opening that occurs in this situation, with the increased access that would result from reductions in both border protection and domestic support. Two trade reform scenarios will be modelled. The first will attempt to simulate a possible agricultural agreement that includes cuts to *both* domestic support *and* border protection. The design of this reform outcome will be influenced by the proposals already submitted to the WTO. The other scenario attempts to shed light on the question "does negotiating domestic support reform really matter?" The regions most concerned about multifunctionality, for example, include the EU, the EFTA countries, Japan and South Korea. In those regions, it will be assumed that governments fully compensate farmers for the tariff cuts by increasing support by sufficient to maintain output levels. That is, such compensation will be assumed to be fully "coupled" in that it directly impacts on production and trade<sup>3</sup>. Various measures of the gains from trade reform will be compared with those obtained from the first, more complete set of policy reforms. An indication will also be obtained as to the potential increase in domestic support expenditures in those regions that provide the compensation.

## DESIGN OF POLICY EXPERIMENTS

### Market access

Despite the reductions agreed in the UR, agricultural tariffs currently average over 64% (Gibson *et al.* 2001), compared with about 4% for non-agricultural items. Two major problems continue. One is the average height of the tariff, and the other is the wide dispersion across agricultural tariff rates – and in some cases, such tariff dispersion is associated with the additional problem of tariff escalation. Commodities whose average tariffs exceed the global average include tobacco, dairy, meats and grains. Gibson *et al.* examined average tariffs in various countries for several commodity groups. In the USA, such tariffs vary from zero to over 100% (tobacco); in the EU and Japan the range of average tariffs is even wider - from zero to 350% (sugar beet) in the EU and from zero to 322% (dairy) in Japan. Such tariff peaks generally make profitable trade impossible. Defining a megatariff as one in excess of 100%, Gibson *et al.* uncovered 141 megatariffs in the EU schedules, 70% of which are in the dairy and meat sectors. In Japan, megatariffs account for 63% of all tariff-lines in the dairy sector, with 20 of those rates in excess of 500%.

Of the current proposals for tariff reform (Meilke *et al.* 2001), that of the Cairns Group is the most aggressive. It argues for deep cuts, using a formula approach that reduces high tariffs by more than low ones. The USA also seeks substantial tariff reductions or elimination of tariff disparities among countries, but does not indicate a particular formula. The EU proposes the same formula as was used in the UR, to give countries the needed flexibility required in lowering tariffs. Japan is not in favour of a formula-based approach to tariff

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<sup>3</sup> Based on recent experiences, such payments would in practice be somewhat more decoupled than this. Thus the reductions in imports, for example, that we quantify in the second scenario may well paint an overly-negative picture.

reductions, and proposes modest reductions on a product-by-product basis (the request-and-offer approach) with allowance to exempt some commodities from any reduction. Developing countries have made a number of proposals in this area: some suggest tariff reductions being limited to the developed countries, and some support a formula approach that makes the biggest cuts to the largest tariffs.

Drawing from these proposals, the two scenarios discussed below both include tariff reductions as follows. First, tariffs below 5% ('nuisance' tariffs) will be eliminated. Second, the UR formula of an average 36% reduction in agricultural tariffs will be applied to tariffs above 5%, but excluding the megatariffs. For the latter (tariffs in excess of 100%), the 'Swiss Formula'<sup>4</sup> is used, calibrated so that a 100% tariff is cut by 36%, with higher cuts applied to greater tariffs. For example, the chosen calibration would reduce a 200% tariff by 53% and a 300% tariff by 63%. The idea of combining approaches in this manner was coined the 'cocktail' approach by Josling and Rae (1999).

#### Export competition

Any future task of reducing agricultural export subsidies is essentially an EU problem. Of the US\$27 billion spent by WTO members subsidising exports between 1995 and 1998, the EU accounted for nearly 90%. Over this period, the EU subsidised almost all its exports of coarse grains, butter and skim-milk powder and beef, as well as the majority of its other dairy exports and wheat<sup>5</sup>.

Country position papers submitted to the WTO as part of the current negotiations indicate a high level of commitment to reduce the levels of export subsidies (Young *et al.* 2001). The Cairns Group and the USA are pressing for the complete elimination of export subsidies. Several developing countries also propose this outcome, in recognition of the depressing effect of such subsidies on domestic prices and therefore their own production incentives. A somewhat different position is adopted by the EU and Japan (which does not use export subsidies). These countries are in favour of such subsidies being reduced provided that *all* export measures are disciplined. The latter concerns refer to the so-called implicit export subsidy components of export credits (primarily used by the USA), state trading enterprises (STEs) and food aid, since these institutions and measures can and do include elements of export subsidisation.

The analytical model used in this paper cannot deal effectively with reforms in export credit policies, STEs and food aid. Although some reforms in these areas may be required to extract from the EU a commitment to reduce explicit export subsidies, total implicit export subsidies delivered via export credits for example (as estimated by the OECD 2000a) are described by Young *et al.* as being relatively small subsidies and unlikely to have major distortive impacts on trade patterns. In the following scenarios, the extreme position of complete removal of explicit export subsidies is not modelled. Rather, the same 'cocktail' of modalities that is applied to tariff reductions is also used to reduce export subsidies. In many cases, this leads to similar reductions as were agreed in the URAA, but it makes larger cuts to the largest subsidies<sup>6</sup>.

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<sup>4</sup> The Swiss formula was used for tariff reductions in industrial goods in the Tokyo Round. The formula can be written as  $t_1 = a \cdot t_0 / (a + t_0)$ , where  $t_0$  is the existing tariff and  $t_1$  is the new tariff. Here, we use a value of  $a=178$ .

<sup>5</sup> More recently, wheat and much pork and poultry has been exported without subsidisation due to a more favourable Euro/\$ rate and lower EU support prices (that latter is a good example of the link between domestic support and border policies).

<sup>6</sup> It is the gap between domestic and export prices that is reduced here, rather than the total subsidy expenditures or the subsidised volumes that were addressed in the URAA. Using the same rates of reduction for export subsidies as for tariffs has merit in this case since the database used applied observed domestic/world price gaps at the commodity level on both the import and export side. It is therefore logical that equivalent reductions are made to both tariffs and export subsidies.

### Domestic support

The database we access in this study does not disaggregate domestic support expenditures into their amber, blue and green categories. Therefore it is not possible to consider re-categorisation of domestic policies, or to apply different rates of reduction to the different categories, as some countries have proposed (Kennedy *et al.* 2001). Also, the modelling framework used requires these cuts to be applied at the commodity level, rather than to the sum of domestic support payments.

Three different approaches to dealing with domestic support, within the above constraints, will be explored. First, domestic support<sup>7</sup>, at the commodity level, will be reduced by 20%. This constitutes rather a severe approach to domestic support reduction, as it requires countries to reduce all categories (colours) of support, and does not permit the trading-off of support among commodities. Second, we recognise no cuts in domestic support in some cases. That is, the support-to-market price ratios in the base data will be retained. Third, in addition to not requiring cuts in domestic support, certain countries (such as those currently embracing farmer compensation and multifunctionality) will be permitted to *increase* domestic support expenditures by way of compensation for reductions in border protection<sup>8</sup>. The specific countries and commodities allowed to make such compensation will be revealed as the modelling proceeds. In other words, if domestic support reductions were to be excluded from the current negotiations, we anticipate that some countries would behave in this manner. To the extent that significant benefits from the remaining (border) policy reforms are achieved under the latter scenario, it may be concluded that the troublesome 'domestic support' component of the current negotiations might be given a lower negotiating priority.

### SIMULATION METHODOLOGY AND EXPERIMENTS

The GTAP applied general equilibrium model (Hertel 1997) was used to quantify some interactions between reforms in trade policies and domestic support. This is a multi-region model built on a complete set of economic accounts and detailed inter-industry linkages for each of the economies represented. The GTAP production system distinguishes sectors by their intensities in five primary production factors: land (agricultural sectors only), natural resources (extractive sectors only), capital, and skilled and unskilled labour. In trade, products are differentiated by country of origin, allowing bilateral trade to be modelled, and bilateral international transport margins are incorporated and supplied by a global transport sector. The model is solved using GEMPACK (Harrison and Pearson 1996). Data was from the version 4 GTAP database, which is benchmarked to 1995, and was aggregated up to the level of 11 regions and 15 sectors (Appendix Table 1).

The experimental designs are described in Table 1.

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<sup>7</sup> Strictly speaking, it is the ratio of the support price to the market price that will be reduced.

<sup>8</sup> Should there be no agreement over domestic support, it is possible that the final levels of domestic support bound in the URAA would continue to apply. This need not rule out this scenario, however, since that binding refers only to amber box support. What we do assume here is that all blue or green box support has the same direct impact on production and trade as would amber box support.

Table 1 Experimental Design

	Market Access	Export Competition	Domestic Support
Exp. #1	'cocktail' reduction of ad valorem tariff equivalents: 0-5% : eliminated 5-100%: reduced by 36% >100%: use Swiss formula (a=178)	Explicit export subsidies reduced at same rate as tariffs	Total support reduced by 20%, on a commodity-by-commodity basis
Exp.#2	As above	As above	Base total support retained, but compensation for reduced border protection in some regions and commodities

The strategy followed for the construction of Experiment #2 will be as follows. Focus will be on those regions that are currently the major spenders on domestic support policies, and those vigorously embracing multifunctionality – we have chosen the EU, the EFTA countries, Japan, South Korea and the USA. Results from the comprehensive reforms of Experiment #1 will be examined, and reductions in output in the above countries for selected major supported commodities (grains, oilseeds, beef cattle and milk) will be noted. In all such cases, compensation will be permitted in Experiment #2 such that base period levels of output can be maintained. Further iterations may be required if implementation of such compensation leads, in turn, to output reductions in these countries that were not compensated for in a previous iteration. Such compensation is incorporated by modifying the GTAP model closure to allow output to be fixed (exogenised) while endogenising the ratio between support and market prices<sup>9</sup>. Total domestic support expenditure will be computed as the difference between the supply price and the market price, times the volume of output (as explained in Figure 3)<sup>10</sup>.

## RESULTS

Experiment #1 made reductions to tariffs, export subsidies and domestic support. Under this scenario, results indicated that domestic production of wheat, other grains, oilseeds, ruminant livestock and milk would all decline in the EU, EFTA, Japan and Korea. Experiment #2 illustrates a scenario wherein domestic support commitments are set aside in a future WTO agreement, and individual countries are free to do as they wish in regard to domestic support spending. Specifically, Experiment #2 assumes these countries increase domestic support for the commodities mentioned above so as to maintain base levels of output. Such a second-round of model results indicated that production of wheat and milk in the USA would fall (influenced by increased support of those sectors primarily in the EU). Therefore in a third round of computations, compensation was also permitted in the USA for wheat and milk.

In Table 2, focus is on those countries and commodities on which additional compensation payments have been allowed in experiment #2. The first column of numbers contain the commodity trade balances in the base year of 1995. Other data columns give the change in those trade balances under the two modelled scenarios. In every case involving the EU, EFTA, Japan and Korea, the comprehensive reforms of experiment #1 result in an increase in net imports or (EU wheat and dairy and EFTA dairy) a reduction in net exports. The USA

<sup>9</sup> That is, we swap the variable  $to$  (change in the ratio of the supply price to the market price) for  $qo$  (change in quantity of output) in the closure for Experiment #2.

<sup>10</sup> In GTAP notation, this is estimated as  $VOA(i,r) - VOM(i,r)$ , where the former is value of output  $i$  in region  $r$  at agent's prices, and the latter is value of output in region  $i$  at market prices.

is a net exporter of each commodity covered by this Table, and the comprehensive reforms result in an increase in those exports.

The earlier discussion of Figure 3 predicted that when the protective regions compensate their farmers for the reductions in tariffs, the increase in net imports (or decrease in net exports) would be less than when such compensation is not paid. The results of Table 2 show that trade balances do deteriorate by less than in the first experiment, and by substantially less in most cases. For example, the EU's 1995 trade surplus in wheat of US\$1076 million is reduced by only \$25 million when compensation is allowed, compared with a reduction of \$443 million under the comprehensive reforms. For dairy products, EU compensation for tariff cuts results in EU net exports falling from \$3029 million to \$2879 million, rather than to \$2108 million with the more complete reforms of experiment #1. Such reduced imports offer less market access for the exporters. So in the case of the USA (which in experiment #2 was permitted compensation payments only for wheat and milk) the increases in exports under comprehensive reforms are substantially reduced in experiment #2.

Impacts on prices and traded volumes at the global level are indicated in Table 3. The comprehensive reforms increase export prices by up to 7% (dairy products), with price increases in the 3%-6% range for several other commodities. The global volumes exported also increase in most cases, especially for coarse grains. Comparing global export volumes across both experiments, the expansion in wheat, beef and dairy trade is greater in the second experiment. Exports of these commodities were heavily subsidised in the base year in the EU, as were dairy exports in the USA. The reductions in export volumes that occur in experiment #1 are much smaller in the second experiment since compensation payments have maintained levels of domestic production. Hence global export price increases are generally much smaller in the second simulation – in fact the results suggest that failure to reach agreement on domestic support reductions could see global dairy prices falling relative to the base.

In the event of the agricultural negotiations failing to reach agreement on domestic support, how likely is it that certain regions would use this as an opportunity to provide full compensation to farmers for reduced border protection? Of course we are not in a position to answer this question, but some light is shed from the estimates of Table 4. The GTAP database records that in 1995, the EU spent US\$46 billion on domestic support. The modelled reductions in domestic support included in experiment #1 would see this total reduced to \$36 billion. However, should agreement be reached only for reductions in border protection, and the EU provided full compensation in respect of our chosen major commodities, EU total spending on domestic support would need to increase by nearly 50% to \$69 billion. Given the budgetary and enlargement issues confronting the EU at present, it is perhaps improbable that EU domestic support spending could increase to this extent. While such spending has increased substantially over the past decade – from \$15 billion in 1986-88 to \$43 billion in 1999, this reflected to a large extent the shift from price support to compensation payments as part of the CAP reforms. Over the same period, the total PSE for the EU increased much less – from \$95 billion to \$114 billion (OECD 2000b). Therefore, in the event that the current negotiations were to reach agreement on the kind of tariff cuts that we model, but not on domestic support, we suggest that the EU would likely back off past practice of providing full compensation to its farmers<sup>11</sup>.

Similar conclusions may be drawn with respect to the EFTA countries and Japan, who would also face substantial increases in domestic support spending should they opt for full compensation under experiment #2. For example recent trends in Japan's agricultural support spending suggest that it, too, may have difficulties with such a large increase in

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<sup>11</sup> We acknowledge that another option for the EU would be to seek a more moderate approach to reducing megatariffs, in which case fuller compensation might be affordable.

domestic support. Japan's PSE has increased only moderately in recent times, from US\$54 billion in 1986-88 to \$59 billion in 1999 (OECD 2000b). And historically, by far the majority of this support has been provided through border protection rather than as domestic support (see Figure 1).

Our comprehensive reform scenario produces an increase in global welfare of US\$25 billion (Table 5). As expected, the greatest gains occur for the regions with the highest agricultural tariffs or export subsidies – the EU, Japan and EFTA. More efficient allocation of resources provides the bulk of these benefits to the latter regions. Exporting regions such as Australia, NZ, and the USA benefit primarily due to improved terms of trade. The relatively weaker liberalisation of experiment #2 reduces the global welfare gains by half, although as in the first scenario, all regions with the exception of ROW still enjoy welfare enhancement. However the EU experiences just one-third of the gains from the more comprehensive reforms, since the compensation payments to farmers prevent resources from shifting to more efficient uses.

Finally, Table 6 indicates changes in New Zealand's net agricultural exports. The comprehensive policy reforms of the first experiment would increase New Zealand's agricultural and food exports (1995 values) by 25%, or from US\$5.8 billion to \$7.3 billion. If the policy reforms were restricted to reductions in tariffs and export subsidies, and if certain countries chose to pay compensation to farmers as described above, New Zealand's agricultural exports would increase by less, but that increase would still be almost US\$1 billion or about 60% of the increase achieved under the full reform scenario. With beef and dairy farmers in Europe and Northeast Asia receiving compensation in the latter situation, New Zealand's output of these commodities increases by less than in the first scenario, and therefore so do exports.

## CONCLUSIONS

Negotiating meaningful reductions in domestic support is shaping up as one of the more contentious issues in the current WTO agricultural negotiations. The domestic support instruments used in some countries are linked to trade policy in the sense that reductions in tariffs may be accompanied by increases in domestic support. The question therefore arises, should countries agree to reduced border protection, what would be their responses with respect to domestic support? Should the agricultural negotiations mandate a reduction in domestic support, then that provides the answer. But because of the political and economic complexities of the negotiations on domestic support and the so-called non-trade issues such as multifunctionality, what if no agreement is reached on domestic support? Some countries could conceivably increase domestic support spending, but at least for the substantive tariff reforms modelled here, the increase in total domestic support expenditures in regions such as the EU, EFTA and Japan appear unlikely. Even if they were implemented, the global gains from reductions in border protection alone would be US\$25 billion, or one-half of that achievable under a more complete liberalisation.

Finally, an important qualification: the above conclusion rests on the EU and others agreeing to the substantial tariff and export subsidy cuts modelled here. If they knew that domestic support was excluded from the negotiations, they could well seek a more moderate reform of agricultural tariffs so as to make required compensation to farmers more affordable. Note also that the EU and Japan, for example, have already proposed that tariff cuts be 'balanced' and 'moderate', which may not be their interpretation of the scenarios assumed in this paper. Further research could replicate the above approach, but assume tariff reductions more consistent with the EU, EFTA and Japanese proposals.

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Table 2 Impacts on Net Exports/Imports<sup>a</sup> for the Compensating Regions/Commodities (US\$mill)

	Base trade balance	Change in trade balance	
		Exp#1	Exp#2
<b>WHEAT</b>			
EU	1076	-443	-25
EFTA	-53	-38	8
Japan	-1022	-499	-33
Korea	-459	-36	-14
USA	5328	342	85
<b>OTHER GRAINS</b>			
EU	-294	-922	-49
EFTA	-63	-44	11
Japan	-3056	-358	-58
Korea	-1408	-368	-36
USA	8456	1996	849
<b>OILSEEDS</b>			
EU	-4973	-513	-34
EFTA	-17	-53	-3
Japan	-2285	-77	-36
Korea	-504	-8	1
USA	5541	270	68
<b>RUMINANTS/MEATS<sup>b</sup></b>			
EU	-1573	-3722	-1284
EFTA	-167	-311	-185
Japan	-4347	-376	-264
Korea	-761	-49	-30
USA	1461	854	516
<b>DAIRY</b>			
EU	3029	-921	-150
EFTA	161	-734	-20
Japan	-845	-1416	-993
Korea	-139	-36	-46
USA	161	320	1

Notes: a. 'Net exports' is the value of exports (fob) less the value of imports (cif). A negative value denotes net imports.

b. Ruminants/meats is the sum of the GTAP commodities 'ctl' and 'beef' (see Appendix Table 2)

Table 3 Impacts on Global Prices and Export Volumes (% change fom base)

	Change in volume of global exports			Change in price of global exports		
	Exp#1	Exp#2	#2 as % #1	Exp#1	Exp#2	#2 as % #1
Rice	0.3	3.8	1222	6.5	3.2	50
Wheat	0.2	0.7	364	5.7	0.3	5
oth_grain	6.5	5.2	80	4.3	-1.8	-42
Oilseeds	1.9	1.6	81	3.1	0.5	17
oth_crops	3.1	3.8	123	0.6	0.4	67
Ctl	-3.0	2.3	-78	5.2	-7.9	-151
oth_anim	1.3	2.1	167	3.4	1.4	40
Beef	1.6	2.2	137	3.5	-1.0	-27
oth_procfood	5.3	5.7	108	0.8	0.1	14
Dairy	0.4	1.7	456	7.3	-2.6	-35

Table 4 Domestic Agricultural Support Expenditure<sup>a</sup> (US\$mill)

	Base	Exp#1	Exp#2	Sim#2 as % base
EU	46464	36016	68919	48
EFTA	3971	2288	7019	77
Japan	12273	9081	19588	60
Korea	..	..	590	..
USA	13796	11587	14344	40

Note: a. In GTAP notation, this is equal to VOA – VOM, summed over all farm sectors

Table 5 Changes in Welfare due to Trade Liberalisation (US\$mill)

	Exp#1	Exp#2	#1 as % #2
AUS	1167	804	69
NZL	757	475	63
JPN	5594	3367	60
KOR	425	186	44
ASIA	1322	1531	116
CAN	238	71	30
USA	1713	447	26
C_STH_AM	1495	1161	78
EU	10070	3262	32
EFTA	3548	1541	43
ROW	-1258	-497	39
Global	25071	12349	49

Table 6 NZ's Net Exports: Base Values and Changes due to Liberalisation (US\$mill)

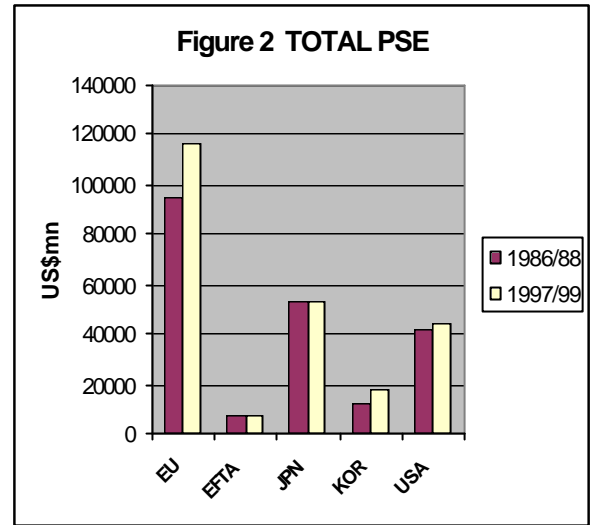
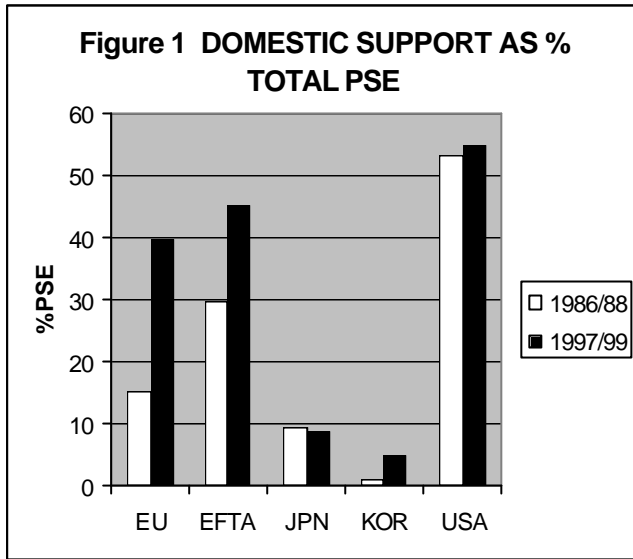
	Base	Change in net exports		
		Exp#1	Exp#2	#1 as % #2
Wheat	-33.4	-3.9	-2.2	57
oth_grain	-12.2	-3.3	-2.4	72
Oilseeds	-4.4	-0.7	-0.5	67
oth_crops	351.1	-65.9	-21.5	33
ctl+beef	1741.2	602.4	361.1	60
oth_anim	1331.3	-165.5	-142.0	86
oth_procfood	698.3	-128.6	-84.8	66
Dairy	1750.7	1270.0	807.3	64
Total	5822.6	1504.6	915.0	61

Appendix Table 1 Regional Aggregation

Acronym	Regions
AUS	Australia
NZL	New Zealand
JPN	Japan
KOR	South Korea
ASIA	China/Hong Kong/Taiwan, South Asia, Southeast Asia
CAN	Canada
USA	USA
C_STH_AM	Central & South America
EU	European Union 15
EFTA	European Free Trade Area (Iceland, Norway, Switzerland)
ROW	Rest of World

Appendix Table 2 Sectoral Aggregation

Acronym	Sectors
Rice	Paddy rice
Wheat	Wheat
Oth_grain	Cereal grains nec
Oilseeds	Oil seeds
Oth_crops	Vegetables, fruits, nuts, sugar cane/beet, crop fibres, crops nec
Ctl	Bovine cattle, sheep & goats
Oth_anim	Non-ruminant meats, animal products nec, wool
Milk	Raw milk
Nat_res	Forestry, fishing, coal, oil, gas, minerals nec
Beef	Meat of bovine cattle, sheep & goats
Oth_procfood	Rice, sugar, vege. oils/fats, beverages, tobacco, food products nec
Dairy	Dairy products
Textiles	Textiles, clothing & leather
Manuf	All manufactured products
Serv	Services



Source: OECD (2000b)

Figure 3 Linkages Between Domestic Support and Trade Policies

