

Reforming Agricultural Domestic Support of the EU in the Doha Round:
Measurement, Feasibility, and Consequences¹

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Abstract

Inspired by the recent July Package of WTO agricultural trade negotiations, this paper argues that it is feasible for the EU to undertake the largest cuts to its final bound AMS and total trade distortion domestic support (by respectively 70 and 75 percent). These cuts can be accommodated by the current reform programs of the Common Agricultural Policy of the EU. Based on this, a tiered reduction formula for other WTO members is proposed and preliminary analysis show that other member countries, including the US, have the possibility to meet this proposal.

Analyzing implications of reforming agricultural domestic support is not an easy task, due to several measurement and modeling issues and the complexities associated with domestic support programs in different countries. In this paper, we show how the reform of the CAP in the context of fulfilling the WTO reduction proposal is modeled, especially the decoupling of its Amber and Blue box programs. Built on the modeling exercise, numerically simulated results from implementing the proposal are presented. First, a structural adjustment in EU agriculture and food production would be expected, with the outputs of wheat, oilseeds, plant fibers, bovine animal and bovine meats dropping significantly. Second, the EU's net export position in these

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products would deteriorate in responding to the reform. However, the overall size of the EU agricultural production and trade remains nearly unchanged. Third, despite substantial allocative efficiency gains accruing to the EU from the CAP reform, its terms of trade effect is nevertheless quite small. Lastly, although other countries having distinct comparative advantages in those commodities under the EU domestic reform programs may gain from this reform, on aggregate the welfare and trade expansion effects on the rest of world are expected to be quite limited, as compared to what can be realized from market access reform.

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1. Introduction

WTO agricultural trade negotiations have been back on track with the agreement to the July Package in 2004. In these negotiations, domestic subsidies given by a few member countries to their agriculture sectors have been under discussion. Many developing countries pressure these members to reducing their domestic support measures. In responding to these pressures, the July Package outlines a framework for reducing these measures. In the framework, the guidelines of reforming domestic support measures in the form of a tiered formula are laid out but numerical targets of the formula is not specified and remains to be negotiated.

To speculate the possible outcome of the negotiations under the framework and to evaluate the impact of such outcome are no easy task, which requires detailed knowledge of the WTO measurements of domestic support programs and of the actual policy instruments used by individual member countries. Specifically, we outline several challenges facing analysts below.

Unlike the cases of reducing market access barriers and export subsidies, reforming domestic support measures involves a complicated package of policy instruments that are placed in different WTO “Boxes” (see Figure 1, reproduced from Baffes and de Gorter, 2005).

[INSERT FIGURE 1]

Any reductions will be conducted to the individual Boxes and to the overall level of trade-distortion domestic support that encompasses the different Boxes. To complicate matters, the current allowed level of domestic support for each member country under the Uruguay Round agreement is tied to historical references, such as average production values, land areas, intervention prices, and average historical world market prices. Some of these measures have since lost their relevance because of changing market conditions and changing trade policies. For example, the Market Price Support included in the Amber Box for the EU is largely no longer relevant. Yet, the EU is still obliged to include some “fictional” numbers in its notification of the Aggregate Measure of Support (AMS) to the WTO. What this implies for the reduction negotiations is that it becomes quite difficult to figure out the actual level of support using the WTO classification scheme (the Boxes) and it is even more difficult to come up with a numerical reduction target, given the current level of permitted support and the actual level of support. These point out to a research question on how to correctly measure domestic support programs in policy analysis.

Furthermore, analyzing the effects of any reduction proposal needs to match the support given to individual instruments in each of the Boxes with the actual policy variable in an economic model. Researchers typically encounter two possible issues. First, one may only have the knowledge of aggregate level of support in each box but not the details associated with

individual policy instruments within the boxes. Second, different countries typically have very different policy instruments placed in the same Box. Therefore, a sensible modeling-based evaluation of a reduction proposal needs to translate the reduction proposal into changes to the actual policy instrument in the model and the implementation of reduction proposal needs to be conducted on a country by country basis.

Lastly, unlike the reduction of tariff and quotas, domestic support reforms typically imply reducing fiscal expenditures on these programs rather than reducing the price wedges. In fact, if the fiscal spending needs to be set at a certain level, the relevant price wedge then needs to be adjusted endogenously in responding to a reduction of the support in dollar terms. In many cases, reforming domestic support program may also involve turning a trade-distortion measure into a “decoupled” instrument. There, analysts need to make sure that the new instrument is indeed decoupled from production decision of the affected products.

The EU maintains the largest domestic support program in the world that is likely subject to new WTO disciplines and reduction commitments at the conclusion of the Doha negotiations. The above discussed measurement and modeling challenges are perhaps most evident in analyzing the possibility, feasibility and consequences of reforming domestic support in the EU. The EU’s efforts in meeting its potential WTO domestic support commitments are in essence the reform of the Common Agricultural Policy (CAP). Recent and ongoing initiatives of the CAP reform include the Agenda 2000 reform, the Mid-Term Review reform, the sugar reform and proposed sectoral initiatives in areas such wine fruit and vegetables. In addition, the enlargement of the EU has also important implications on domestic support negotiations. Therefore, speculations on the possible position of the EU in the WTO and evaluations of the impact of the EU position need to be conducted in the context of these CAP reform programs, taking into account external pressures facing the EU.

The purpose of this paper is to draw out a reduction proposal for reducing the EU’s domestic support measures in the spirit of the July Package framework. The possibility and feasibility of the proposal is analyzed by carefully reviewing the allowed level of support for the EU and the existing and ongoing reform initiatives of the CAP (Section 2). Based on this, we also conjecture a tiered reduction formula for other WTO members (Section 3). With the proposal, we then proceed to discuss the modeling of existing domestic support programs of the EU and their reforms per the reform proposal in a computable general equilibrium model. There, we show how we have mapped the WTO boxes to the instruments in the model and how we have modeled the CAP reform, which in the context of meeting the WTO reduction proposal implies largely a decoupling of the Amber and Blue box programs (Section 4). After that, the

numerically simulated results from implementing the proposal are presented and compared to those obtained from market access and export competition reforms (Section 5). Conclusions and discussion remarks are included in the last section.

2. Domestic support in the WTO negotiations and implications for the EU

In the 1994 Uruguay Round Agreement on Agriculture (URAA), disciplines were introduced to limit agricultural support programs that encourage agriculture production. Member countries made commitments to bind their levels of domestic support using an Aggregate Measurement of Support (AMS), which provides a measurement for domestic support classified as Amber Box policies. Domestic support measures not classified in the Amber Box were exempted from reduction commitments, including trade distorting domestic support policies falling under the *de minimis* level of support (which is set at less than 5 percent of the value of production in developed countries), support measures contained in the Blue Box (where payments are linked to historical production levels), and Green Box measures that are considered to have minimal trade distorting effects. An overview of these domestic support measures are summarized in Figure 1.

In the current round of agricultural trade negotiations, disciplined domestic support has been extended to cover Blue Box policies and a new overall limit on all trade-distorting domestic support has been proposed. More precisely, the Doha Work Program (WTO, 2004) – commonly known as the July Package – stipulates a framework to reduce the possible use of Amber (AMS) and Blue Boxes payments, plus payments falling under the *de minimis* rule. Overall, the framework calls for “substantial reductions in trade-distorting domestic support” and specifies that special and differential treatment will be an integrated part of domestic support, and that there will be a strong element of harmonization in the reductions made by developed countries.

To secure substantial reductions, the framework proposes to cap both the *de minimis* support and the allowed amount of Blue Box support. More specifically:

- the overall trade-distorting domestic support, as measured by the Final Bound Total AMS plus the permitted *de minimis* level plus the highest level of Blue Box payments during a recent representative period, will be reduced according to a tiered formula; in the first year of implementation countries have to reduce support by 20 percent relative to this overall base;
- the Final Bound AMS will be reduced substantially, using a tiered approach, with members having higher Total AMS making greater reductions.

- reductions in *de minimis* are also to be negotiated;
- Blue Box support in the future will not exceed 5 percent of a WTO Member's average total value of production during an historical period to be agreed upon;
- and direct payments that do not require production under certain conditions can be placed in the Blue Box.

The EU is the world's largest provider of domestic agricultural support in dollar terms. The total possible trade distortion domestic support of the EU specified as the final bound AMS commitment in the UR agreement exceeds €7 billion, with no limit on Blue Box payments. Of course, not all this allowed amount has been actually spent by the EU in the years following the UR. In fact, the notified total AMS of the EU in the year 2001 was €43.6 billion, with an additional €2.2 billion in the Blue Box.

The framework for reducing domestic support proposed in the July Package calls for the EU to make larger cuts to its trade distortion domestic support measures. In fact, many speculate that the EU will be put into the top tier in a tiered reduction formula. For example, Canada has asked the EU to make the biggest proportional cuts in its domestic support ceiling as part of the forthcoming WTO Doha Round agreement and proposed to position the EU alone in the first "tier" of reduction commitments (Agra Europe, 2005). In the second tier, Canada suggests that the USA and Japan should be placed, with other developed countries in the third tier and developing countries in the fourth tier.

Facing the pressures from other WTO members to make the largest cuts in its domestic agricultural support, the natural question to ask is: is the EU willing and in the position to agree to a first-tier cut? In this paper we argue that the CAP reforms in the past decade have given the EU a large margin for accommodating a large cut to its domestic support measures. If indeed the EU agrees to a first-tier cut, the pressure would be on other countries with large domestic support to follow suit.

3. The CAP reform and possible EU positions in domestic support negotiations

Following the guidelines laid out by the Doha Work program, Table 1 is constructed to analyze how large a reduction in total trade-distorting domestic support the EU-15 can undertake from its overall base level commitment, taking into account the recent Agenda 2000, the Mid-Term Review (MTR) the sugar and olive oil reforms of the CAP.

[INSERT TABLE 1]

In the EU-15 the overall base level of all trade-distorting domestic support is assumed to be €12,874 million, which has been calculated by adding the URAA final bound AMS levels together with the permitted *de minimis* payments in a given reference period plus the highest of existing Blue Box payments during the 1995-2002 period.² Comparing the overall base level of trade distorting domestic support with the notification to the WTO for the year 2000/2001, the EU15 was already well below this base commitment of €12,874 million for that year: the reported AMS plus *de minimis* and Blue box payments amounted to €6,455 million only. Moreover, the recent CAP reforms will further reduce the actual amount of trade distorting support in the future, implying that large cuts from not only the total base level but also from the actual notification level are possible. Next, we go through the possibilities of reducing the EU' support measures contained in the AMS, the *de minimis* support, and the Blue Box.

3.1 AMS

In the case of the AMS, the EU15 reported that it used €43,654 million in support of farmers in the WTO Amber Box, of which the Market Price Support (MPS) accounted for €30,684 million. For each relevant commodity, the MPS included in the AMS is calculated as the price gap between a fixed world price (average for the period 1986-88) and an administered market price for the concerned commodity, multiplied by the amount produced.³ In the case of the EU, the administered prices of some commodities that were used in the calculation of the MPS in the 2001 notification by the EU will be or have been already reduced due to the Agenda 2000, the MTR, sugar and olive oil reforms. In fact the Agenda 2000, and the sugar reforms abolishes the intervention price for beef and sugar. The Agenda 2000 reform of the CAP and the sugar reform abolish the intervention prices for beef and sugar, respectively. Until now, these prices have been used in the calculation of MPS in the EU's notification to the WTO. Instead the EU introduces a basic price of 2,224 €/per metric ton of beef, which will trigger public intervention only when the average market price in a member state or region falls below a safety net level of 1,560 €/t for two consecutive weeks. This means that the current safety net level in the EU is 70% of the basic price. In the case of sugar the intervention price is replaced by a reference price for sugar which is set at 404.4 €/per metric ton. The new basic and reference prices act as a trigger level for private storage as well as setting the level of border protection in the EU. In the case of the olive oil reform the notified administered price is abolished and replaced by a new trigger price for private storage, which ranges from 1,779 to 1,524 €/per metric ton for different types of olive oil. It is assumed that these new prices will not be notified as new administered

² The permitted *de minimis* level is simply calculated as 5 percent of the average value of total agricultural production during the period 1999-2002 using values found in the OECD's PSE Tables.

³ Some countries do not use the total amount produced but only the total amount exported.

prices in that both the new trigger price for olive oil and the public intervention price for beef are below the fixed world price (external reference price notified in the EU WTO notifications).

These reductions/abolishment of the administered prices, shown in Table 2, will lead to a lowering of the MPS (hence the AMS) of the EU by €23,558 million, given the production level reported in the 2001 notification.⁴

[INSERT TABLE 2]

Abolishing the administered market price for beef, sugar and olive oil, combined with reductions in administered prices for cereals, and milk, would reduce the notified AMS in 2000/2001 to €20,113 million. This implies that the EU could agree to a roughly 70 percent reduction in its final bound AMS commitment (i.e., from €67,159 million to €20,148 million).⁵

3.2 *de minimis*

For the c

ase of the *de minimis* support, any change in the exempt level would not have any large effect for the EU, due to the fact that the notified *de minimis* support of the EU remains quite small. In its 2001 notification to the WTO, exempt non-product specific and product specific domestic support of the EU amounted to only €538 million and €40 million, respectively.

According to the text of the July Package, it is more likely that a reduction rather than a removal of the exempt *de minimis* support will come out of the Doha negotiations. As such, we conjecture a 50 percent reduction of the *de minimis* rule.⁶ This implies that the *de minimis* rule would be reduced from 5 percent to 2.5 percent. In the case of the EU, non-product specific domestic support would then be capped to 2.5 percent of the total value of agricultural production, which was roughly €6,046 million in 2001 and was well over the notified number of €538 in 2001 (see Table 1). As for the product specific *de minimis* support, the rule to 2.5 percent implies that the EU would have to reduce the 2001 notification of €40 million to €23

⁴ This assumes that the EU will use the new basic and reference prices for respectively beef and sugar as new administered prices in the calculation of MPS in the AMS.

⁵ Future reforms of the common market organisation in fruit and vegetables could possibly enable the EU to undertake a larger reduction commitment of the AMS than the 70 percent presented in this paper.

⁶ The USA had over US\$7 billion in exempt non-product specific and product specific domestic support in its 2001 notification to the WTO. Therefore, a total abolishment of the *de minimis* rule does not seem to be a plausible outcome of the Doha Round.

million.⁷ Therefore, a total of €7 million would have to be moved back into the calculation of the AMS and this would be the only action the EU needs to apply under this conjectured new *de minimis* rule.

3.3 Blue Box

In the year 2000/01, the EU provided its farmers exempt direct payments under production limiting programs in the Blue box that amounted to €2,223 million. These payments were given in the form of land and livestock premiums. Under the MTR reform of the CAP, the majority of these payments will become “decoupled” from production. Therefore, they can be moved into the undisciplined Green Box.

Specifically, the implementation of the MTR reform’s single farm payment gives each member state the option to maintain a small part of its direct payments coupled to production. For the EU as a whole, it is expected that 88 percent of the budgetary transfers in the form of direct payments (i.e. land and livestock premiums, among others) will become part of the single payment. The aggregate ceiling for the single payment in the EU15 is €33,218 million for the year 2013, of which around 21 billion was notified as Blue Box payments in 2001. The MTR will move a large portion of the Blue Box payments to the Green Box, leading to roughly only €4 billion left in the Blue Box – an amount that is well below the new commitment for the Blue Box payments, which must not exceed 5 per cent of the total value of agricultural production in the EU, roughly €2,097 million.

3.4 Total Trade Distorting Domestic Support

Given the assumptions about the possible reductions in the AMS (Amber Box), the 50 percent reduction in the *de minimis* rule, and the relocation of a big part of the Blue Box payments into the Green Box, under existing and planned reform programs of the CAP, the EU should be able to reduce its total trade distorting domestic support from the 2001 notification level of €66,455 million to a new level of €24,674 million (see Table 1). The overall base commitment of all trade distorting domestic support of €12,874 million – from which reductions are to be made – can then be at least reduced by 75 percent, resulting in a new base commitment level of €8,219 million. Such a reduction in the total commitment level would leave room for the EU to increase either *de minimis* payments or Blue Box payments but without the possibility to increase its AMS payments.

⁷ This is because the support granted to some commodities in 2001 exceeded 2.5 percent of their respective production value.

4. Towards a tiered formula for reducing domestic support in the Doha Round

The above analysis has demonstrated that the EU is in a position to institute large cuts to its base commitment level of trade distorting support within the current reform programs of the CAP. If indeed the EU adopts such a position, it would have ripple effects on other countries that are obliged to reform their own domestic support programs.

4.1 A proposal on the tiered formula

Assuming that the above proposed 70/75 percent cuts (i.e. a 70 percent cut to the final bound AMS, and a 75 percent cut to the overall base commitments of all trade distorting domestic support) put the EU in the first tier of the proposed tiered reform formula, other countries can then be placed to several different tiers in a conjectured formula, according to their current levels of domestic support and their base commitments. Table 3 presents this proposal.

[INSERT TABLE 3]

In the first tier, five developed countries (Iceland, Norway, Switzerland, Japan and the EU15) are grouped together, where a 75 percent reduction in total trade-distorting domestic support and a 70 percent cuts in the AMS (both of which are from the base commitments) are imposed. These countries have the highest base commitments before any reductions are undertaken, relative to the values of their agricultural production (see Table 3). In the next tier are Canada and the USA, with a proposed reduction of 65/60 percents. The third tier includes New Zealand and Australia, with 55/55 percent reductions. Lastly, developing countries with domestic support commitments are proposed to reduce both the total trade distorting domestic support and the AMS by 40 percent.

The above proposal on reducing the base total commitments and the AMS, together with the new rules on the *de minimis* (the conjectured 2.5 percent rule for both product and non-product specific support), and the 5 percent cap on the Blue Box payments (contained in the July Package framework), constitutes our best guess on the possible outcome from the Doha negotiations in domestic support.

4.2 How binding are the new commitments?

Using the above proposal and the placement of individual countries in the different tiers, eight countries would have to make reductions to their reported domestic support contained in their latest WTO notification (see Table 3). These of course include the EU15 who has not yet fully implemented the MTR reform of the CAP or abolished the intervention price for beef. The other seven countries are Iceland, Norway, Switzerland, the USA, Argentina, Korea and Thailand.

Here, we offer a preliminary assessment for the US and discuss very briefly how the other six countries would be able to comply with the proposed cuts.

Total trade distorting domestic support in the US amounted to US\$21,458 million in 2001 (Table 4).

[INSERT TABLE 4]

This would have to be reduced to US\$16,825 million, given the total base level of US\$48,701 million and the proposed 65 percent reduction commitment. Moreover, both the AMS and the *de-minimis* payments would have to be reduced as these exceeded the proposed new commitment levels. As for the Blue Box, the US would have no need to do anything, since the US did not report anything under the Blue Box in its 2001 notification to the WTO.

Can the US get under the proposed new levels of domestic support? To answer this question, we need to review the recent 2002 US Farm Act. The Farm Act maintains the fixed direct payment (Green Box) and loan deficiency payments (Amber Box) system but also introduces Counter-Cyclical Payments (CCP). These new CCP provide additional payments to producers when market prices fall below a certain level that is known as target price. They are expected to be included in the Blue Box, due to the fact that these payments are calculated using historical base areas and yields. The CCP have replaced earlier ad hoc crop market loss assistance payments, which accounted for US\$4,640 million of the *de minimis* payments notified by the USA in 2001. Therefore, this amount should be moved from *de minimis* to the Blue Box, thereby relieving the US of the pressure of drastically reducing their *de minimis* payment. Another area where the US can relatively easily cut down from the final bound AMS and hence the total base commitment is the MPS payments related to the dairy policy. Sumner (2003) noted that the administered price for dairy could be abolished without hurting the USA farmers. If this is done, then this would reduce the AMS reported in 2001 by US\$4,483 million (Table 4).

After making these changes to the 2001 notification (moving payments into the Blue Box and abolishing the MPS for milk products), the USA would still not be able to meet the new proposed 65/60 percent reductions. However, recent USDA long-term baseline projections show that this needs not be the case. These projections are conducted each year in order to forecast costs of farm programs for the president's budget. In their latest agricultural baseline projections to 2014 (USDA, 2005), direct government payments to farmers are projected to fall from over US\$24 billion in 2005 to about US\$11 billion per year for the period of 2010-14. Toward the end of the projections, direct government payments will largely consist of fixed direct payments under the 2002 Farm Act and conservation payments, which are Green Box payments. This projection builds on the assumption that government payments fall as rising

market prices for program commodities reduce loan benefits and CCP to farmers. If these projections are found to be the case (i.e. if marketing loan gains and loan deficiency payments are reduced to zero and future Blue Box payments are drastically reduced), the AMS level notified in 2001 would be reduced by roughly US\$6,202 million, thereby enabling US to comply with the proposed new commitments (Table 3).

With regard to Iceland, Norway and Switzerland, their notified AMS are mainly comprised of MPS. Therefore, a large reduction in administered prices would be needed to meet their new domestic support commitments as compiled in Table 3. In Norway, there would also be a need to reduce Blue Box payments by reforming its agricultural policy insofar as to move some of these payments into the Green Box.

In the cases of Argentina and Korea, domestic support is given to respectively tobacco and rice farmers, in the form of MPS. In Thailand, the majority of domestic support is also given to rice farmers in the form of paddy pledging scheme and soft loan measure. Argentina and Korea would have to reduce their administered prices for tobacco and rice, while Thailand would have to reduce its tax payer financed rice support scheme or convert them into Blue Box payments if the proposed reduction scheme was implemented.

5. Modeling trade-distorting and non-trade distorting domestic support of the EU

One of the reasons why negotiating domestic support reductions is an integrated part of the Doha Agenda lies in the argument that domestic support programs – especially those Amber Box measures – encourage over-production of agricultural commodities in developed countries and depress world market prices. In the case of the EU, budgetary outlays of the CAP programs also exert great pressure on the common financial scheme of the EU. Therefore, one of the ways to create momentum for reducing the spending on these programs is to reveal the true cost associated with these programs, an issue that can be analyzed with numerical economic models. The modeling issues involved here, however, are far more complicated as compared to the modeling of market access barriers or export subsidies. This is because the functioning of the latter two are more or less uniform across countries, whereas domestic support programs can vary widely from one country to another.

Recent numerical studies on multilateral reforms of domestic support programs are largely based on CGE models, among which the GTAP model (accompanied by the global GTAP database) is the most widely used. In the GTAP framework, domestic support measures are modeled as intermediate input subsidies, land and capital based subsidies, and output subsidies. A sensible modeling approach requires improvements from existing studies in the following areas:

- First, one needs to carefully match the individual domestic support measures contained in the Amber, Blue and Green Box with the instruments in the model and associate the various payments to the right instruments.
- Second, reforming domestic measures in many cases calls for changing the association of certain payments from one type of instrument to another type in the model.
- Third, reductions of domestic support payments often requires maintaining the integrity of the fiscal spending, which usually means that shocking the price wedges is misleading.
- Lastly, the applied shocks in model simulations need to be generated using the differences between the current support level and the targeted support level, as opposed to those between the WTO base commitment and the targeted level. This is because there are large difference between the actual spending and the base commitment levels.

For these reasons, modeling domestic support measures of the EU and their reforms is not a trivial issue. Here, we present our modeling of the EU domestic support programs in a modified version of the GTAP model (Hertel, 1997), which we have used for many of our studies of the reform of the CAP.⁸ The GTAP version 6 database (Dimaranan and McDougall, 2005) is used to carry out the policy simulations.

The domestic support included in the GTAP database originates from the OECD's Producer Support Estimates (PSE), which have been incorporated into the GTAP database as output subsidies, intermediate input subsidies, land subsidies and capital subsidies. The total value of the PSE included in the GTAP database version 6 (the base year of which is 2001) amounts to €44,785 million, which includes both Green, Blue and Amber Box payments but excludes MPS. It is slightly less than the corresponding amount of €47,667 million notified to the WTO by the EU in 2000/2001. The latter includes €22,223 million in the Blue Box, €21,845 million in the Green Box, and €3,600 million of taxpayer financed non-exempt direct payments and non-product-specific payments in the Amber box. The discrepancy is due to the fact that some payments included in the WTO domestic support notification are not included in the PSE calculation but are found under the General Services Support Estimate (GSSE) from the OECD.

5.1 Modeling Blue Box payments of the EU

Blue Box payments in the GTAP version 6 database amount to €23,429 million for the EU-15, €18,031 million of which are compensatory payments given to farmers based on fixed area and

⁸ For more detailed discussion of the many changes to the standard GTAP model, readers are encouraged to read a series of working papers published by the Food and Resource Economics Institute, Copenhagen, Denmark on reforms of the CAP and trade liberalizations under the WTO. These papers can be downloaded from www.foi.dk or can be obtained from the authors of this paper.

yields (i.e. hectare premium) and the remaining €5,398 million of which are compensatory livestock payments based on fixed number of heads (i.e. livestock premium, see Table 5).

[INSERT TABLE 5]

The full implementation of the Agenda 2000 reform of the CAP will increase the Blue Box payments to €25,358 million, while the enlargement of the EU further increase these payments to €30,587 million.

Those Blue Box payments based on fixed areas and yields (hectare premium) are implemented in the model as input subsidies to agricultural land where reform crops are grown. In responding to any exogenous shocks to the model, the payments per hectare are fixed but land is allowed to adjust endogenously between reform crops as long as the fixed base area is not exceeded. Failing to do so would result in either larger or smaller spending on these programs than the actual payments. The MTR reform implies that the majority of these payments will become part of the decoupled single farm income payment linked to the utilized agricultural area in each member country.

Similarly, compensatory payments given to livestock (suckler cows and breeding ewes) are modeled as subsidies to agricultural capital, while male animal/steer premiums are modeled as output subsidies to slaughter animals.⁹ The implementation of these compensatory payments are modeled by fixing the total EU budgetary expenditure on premiums paid while allowing premiums per cow/ewe and male animal/steer to adjust endogenously during the projection of the database from 2001 to 2015.

The MTR reform of the CAP converts a large part of the livestock premiums into a simple farm income payment in the form of a uniform land-based payment. Therefore, a large part of the above-mentioned capital subsidies and output subsidies should be converted to the land-based payment. The decision by the EU that grants each member state the option to keep a small portion of Blue Box payments coupled to the number of male animals and steers implies that a reduced premium per head needs to be kept as output subsidies, in addition to the uniform land-based payment in some member countries.¹⁰ In these member states, the reduced premium per head is fixed to allow for the budgetary expenditure to adjust to changes in production.

⁹ These different treatments reflect the fact that suckler cows and breeding ewes are part of capital used to produce slaughter animals, while male animals and steers are final products sold directly to slaughter houses.

¹⁰ Some members are also allowed to retain part of the hectare premiums coupled to production of specific commodities.

5.2 Modeling the Green Box payments of the EU

Green Box payments consist of many different types of support programs that are supposed to be of no or minimal trade-distorting effects. In other words, these payments should be fully decoupled. However, there are ongoing debates on whether some of them are truly non-distorting. In the GTAP database, all Green Box domestic support payments, which are included in the PSE calculations from the OECD, are incorporated into the database as either input or output subsidies. This of course means that Green Box payments included in the GTAP database are coupled to production to some extent. As modelers and researchers have not reached a consensus on the correct treatment of Green Box payments in GTAP, we take the GTAP database as given in this study and focus our attention on modeling the decoupling initiatives of the CAP programs that will result in moving some previous Blue and Amber Boxes payments into the Green Box.

Specifically, the MTR reform of the CAP will move a large part of the Blue and some Amber Box payments to the Green Box. Of the €30,587 million in the Blue Box, only €4,047 million will remain there due to the MTR (Table 5). In addition, direct payments originally classified as Amber Box payments given to milk, olive oil, tobacco, plant fibers and the extensification premiums in the Green Box are now included in the new Green Box single farm income payment.

These decoupled single farm income payments are incorporated in the model by converting those affected Blue and Amber Box payments in each member country into a uniform hectare payment given to all utilized agricultural area. Therefore, the results found in this paper represent a decoupling of direct aid from production where no restrictions on the use of land are imposed.¹¹

5.3 The Amber Box and the MPS

As discussed earlier, non-exempt domestic support classified in the Amber Box contains both direct payments and the MPS. Direct payments are modeled as various subsidies in the GTAP database and are taken as given as the starting point of our analysis. The decoupling of these payments involves eliminating the coupled payments and increasing the single farm income payments in the form of the uniform hectare payment.

In the case of the EU, another complication is related to the MPS, which comprises a large part of the EU's Amber Box support and stems from consumer financed MPS. These are calculated

¹¹ The aggregate PSE for the European Union is dis-aggregated by GTAP commodity and EU member country in the version 6 database, whereby the implementation of the proposed movement of Amber/Blue Box payments into the Green Box shown in Table 5 is modelled at the individual EU member country level.

from historical world market prices and administered institutional prices. Due to the historical nature of this measure, it can be quite inaccurate as actual domestic and world market prices can be quite different from their historical references. The inclusion of MPS in the Amber box also hinges on the existence of an administered price, which might have already been abolished or reduced to the extent that the administered price bears no relevance to reality and is not used as an active regulatory instrument. If this is the case, modeling the reduction in MPS means no actual shocks to the model. On the other hand, if reductions in the administered intervention prices are linked to increased compensatory payments, the reductions in MPS are achieved by reducing the level of border protection (i.e. increased market access and the elimination of export competition – the other two pillars of the Doha agricultural negotiations). In this sense, the MPS reduction is not a pure measure of domestic support but also includes support derived from border measures.

6. Simulating the effects of reducing domestic support of the EU

Having discussed how and to what extent the EU will be able to reduce its domestic support to accommodate a conjectured WTO reform outcome within the reform programs of the CAP and described how these reductions are modeled in a CGE model, we are now in the position to discuss the implications of this reform proposal on the EU and the rest of the world. The impact analysis can be drawn out from the differences between a business-as-usual baseline and a Doha reform scenario. So, in this section, we first describe the baseline and the scenario before presenting the numerical results.

6.1 The Baseline

Like previous rounds of global trade policy reforms, any multilateral liberalization following the conclusion of the Doha Round will likely take a few years to be implemented. A meaningful evaluation of the anticipated policy changes can be obtained by comparing the liberalization scenario with a non-liberalization scenario. Such a non-liberalization scenario contains projections of the macro-economy and incorporates the effects of important policy changes other than the exogenous shocks to be analyzed. To be consistent with the focus of the paper, we construct a non-liberalization baseline scenario which features a number of important policy initiatives by the EU, including the Agenda 2000 Reform of the CAP, the Everything But Arms initiative, and the EU enlargement. In addition, the Uruguay Round Agreement on Agriculture is assumed to be completed in this baseline. Lastly, we apply shocks to GDP, population and total factor productivities to project the world economy to the baseline year of 2015 – a year when we expect the new agriculture agreement being fully implemented.¹²

¹² A more detailed discussion of a similar baseline can be found in Jensen and Frandsen (2003b).

6.2 The Doha Scenario

In the Doha scenario we implement a domestic support reform program of the EU (which is largely the MTR reform of the CAP) as discussed in details in Section 4, while domestic support programs in other countries are assumed to be unchanged.¹³

In addition, a stylized interpretation of the July Package's framework for modalities in reducing market access barriers and export competition measures is also simulated. Specifically, all trade distorting export competition measures are removed and market access barriers are reduced using the proposed Harbinson multiple-tiered formula on applied tariff equivalents found in the GTAP version 6 database. Unlike the shocks to domestic support reform (which is limited to the EU), the market access and export competition reforms are conducted multilaterally in this scenario. In the analysis of the results, we use the effects of the market access and export competition reforms as a benchmark to gauge the relative magnitude of the impact of the domestic support reform.

6.3 Results

Three main results are reported here, including changes in agricultural production and trade of the EU, changes in factor income in agriculture, which we use as a proxy to investigate the effect of the reforms on the farmers, and changes in the economic welfare. These results are reported in Tables 6-10. The individual contributions from the EU domestic support reform and the multilateral market access and export competition reforms to these changes are also provided in the tables.

7.3.1 Agriculture production in the EU

The assumed domestic support reform of the EU primarily has a redistribution effect on primary agriculture production in the EU by shifting resources (especially land) from those commodities under the MTR reform to those previously receiving less support. Indeed, outputs of those products that will experience a net drop of domestic support will decrease, including wheat (-5.8%), oilseeds (-13.7%), and bovine animals (-8.1%). On the other hand, the redistribution of support through the uniform land-based payment will boost outputs of those products that previously received less support, such as vegetable and fruits, other crops, other animals, as can be shown in Table 6. On aggregate, this reform appears to have little impact on the overall agricultural production in the EU, with a mere two-tenth percent decrease from the base production level.

[INSERT TABLE 6]

¹³ We plan to also analyze the reform of domestic support in the US. In the present analysis, agricultural domestic support in the USA is fixed exogenously at its nominal value US\$32,268 million as found in the GTAP version 6 database. In the baseline projection, these payments are deflated by 2 per cent a year.

While the more interesting adjustment lies in the commodity dimension, changes of outputs are also unequal across the member states of the EU. Total agricultural production of Belgium, Greece, Ireland, and the UK is expected to drop and that of other members (including most new members) is expected to increase. This pattern can largely be explained by the initial production patterns of individual members, relative to the commodities affected by the domestic reform program under the MTR.

How big are these output effects, as compared to the impact of multilateral market access and export competition reforms? It appears that the domestic support reform contributes to a large part of the total decline of outputs of a number of primary agriculture products, including wheat, oilseeds, plant fibres, and bovine animals. The redistribution effect of the single farm income payment also leads to output increases of several products such as other crops, other animals, and vegetables and fruits. These output expansions due to the domestic support reform contribute significantly to the total output increases found under the scenario. In contrast, output effects of eliminating export subsidies are generally negative but small, whereas reducing market access barriers has largely negative effects on EU production levels, reflecting the fact that the EU maintains higher average import barriers than many other countries.

7.3.2 International trade of the EU

Reducing and decoupling domestic support measures will generate uneven effects on trade patterns and trade volumes of different products. Those commodities subject to the MTR reform programs will be less competitive in the world market and their exports to external markets will decrease. At the same time, imports of these products from the EU's external trading partners will expand. Moreover, increasing external imports, decreasing external exports, and shrinking outputs imply that imports within the internal market of the EU will have to be adjusted downwards, giving the normal assumption about consumer behaviour in the EU. For commodities that previously receive no or little trade-distortion domestic support, the decoupled support will likely generate opposite effects. Next, we discuss individually the results on intra-EU trade and extra-EU trade (Tables 6 and 7).

[INSERT TABLE 7]

External imports into the EU

As expected, volumes of external imports into the EU would increase quite significantly for wheat (30%), other grains (13.8%), oilseeds (16%), plant fibres (10.2%), and bovine meats (19.4%), due to the domestic support reform of the EU. These are the products whose outputs

are predicted to decline. In contrast, imports of vegetable and fruits, other crops, and other meats would actually decrease. Again, earlier discussion shows that these are the products whose outputs are expected to increase under the MTR reform. On balance, these decreases in external imports are more than cancelled out by the increased imports of the other products, leading to a one percent increase in total external imports into the EU.

This redistribution effect along the commodity dimension of the domestic support reform is more evident, when compared to the effects of the assumed multilateral market access and export competition reforms contained in the scenario. Specifically, market access reform at the multilateral level increases imports into the EU with very few exceptions and total external imports into the EU increase by nearly 15 percent, revealing the fact that such reform is more effective in expanding imports in the EU market. On the contrary, multilateral export competition reform almost unanimously reduces imports into EU and total imports decrease by almost 5 percent. This is because such action turns much of the original export from the EU into domestic consumption and at the same time pushes up world market prices slightly, making imports more expensive in the EU market, thereby “crowding out” external imports into the EU. Overall, total external imports into the EU will increase by \$5.8 billion due to the assumed reforms in the three negotiation areas combined.

External exports from the EU

Changes in external exports from the EU (due to its domestic support reform) largely mirror the corresponding changes in its output and external import patterns. Here, exports of wheat, oilseeds, plant fibres, and bovine meats to the external markets of the EU decrease, whereas exports of a few other products actually increase. Total external agricultural exports from the EU will almost remain unchanged. In contrast, multilateral market access will mostly create more export opportunities for the EU products, resulting in some increases in exports of several products from the EU, which in some cases cancels out the negative effects of the assumed domestic support reform of the EU. For example, the domestic support reform would reduce exports of wheat from the EU by 20 percent, 14.2 percent points of which, however, would be cancelled out by multilateral market access reform. The impact of eliminated export subsidies would significantly reduce exports of those subsidized products, which reinforces the negative effects caused by the domestic support reform on exports for several products, such as wheat and bovine meats.

Despite drops of exports induced by reducing/decoupling domestic support measures and export subsidies by the EU, increases in exports of previously un-protected or little protected products and the opening up of markets elsewhere (caused by the multilateral market access reform

assumed in the scenario) will lead to net increases in the EU's external exports by over \$2.7 billion. This gain, however, is smaller than the increase in external imports into the EU, thereby leading to a slightly worsened external trade balance in agriculture for the EU.

Intra-EU trade

The negative external trade balance implies a reduction of intra-EU trade to some extent. Domestic support reform is quite effective in this regard for commodities under the reform program. Among primary agriculture products, such reform will reduce the internal trade of oilseeds, plant fibres, and bovine animals in the EU all by over 10 percent. For processed food products, the internal trade of bovine meats will be reduced by almost 10 percent. Overall, it is expected that a three-tenth percent reductions in intra-EU agricultural trade will occur.

Multilateral market access reforms also generate strong adverse effects on the internal trading of a number of products, especially bovine meats (21 percent reduction). Eliminating export subsidies, however, appears to lead to marginal increases in the internal trade, due to the redirection of some exports from the external market to the internal EU market. On balance, the three types of reforms will lead to smaller internal trade amongst the EU members and the combined drop in intra-EU trade will amount to almost \$5.9 billion, mostly of which representing a displacement by imports from outside of the EU.

7.3.3 Changes in factor income in agriculture

The nature of the domestic support reform of the EU under the MTR can be further elicited by looking at the total factor payments in primary agriculture in the EU. Despite the large changes in the CAP, the total actual domestic support spending by the EU will remain largely unchanged following the MTR reform. As can be seen from Table 8, total factor payments in primary agriculture are indeed quite stable for both the original and new members.

[INSERT TABLE 8]

For the original EU15, these only increase by half a percentage point, whereas in the case of the new members, there is a very small decrease. So, it appears that on aggregate farmers in the EU are almost fully compensated. This point can be made even clearer when comparing to the impact of export competition and market access reforms. In the latter cases, farmers are assumed to receive no compensation. As a consequence, total factor payments drop noticeably.

7.3.4 Welfare effects

The domestic support reform program of the EU will no doubt improve allocation of economy resources between different agricultural sectors and between agriculture and other industries. As

such, efficiency gains from this reform is expected. And the gains are larger, the larger the size of member country and their previously subsidized agricultural sector. Table 9 reports these results. For instance, the efficiency gains to Germany, the UK and Spain are all over \$400 million. Overall, the EU25 will gain in excess of \$4 billion from the efficiency improvement due to its domestic support reform programs. These add up to the efficiency gains from the multilateral market access and export competition reforms assumed in the scenario, leading to a total efficiency gain of almost \$10 billion.

[INSERT TABLE 9]

On the other hand, the terms of trade effects of reforming the EU's domestic support programs are not as uniform, as these are positive for some member states such as Germany, France, the UK and Poland, and negative for members such as Spain, Italy, and the Netherlands. These mixed results reflect the fact that reforming domestic support measure mostly changes the allocation of economy resources among different sectors and its ramification in the world market prices varies from one product to another. Therefore, members that experience increases in their net exports (imports) in those products of higher (lower) world market prices will gain from improved terms of trade, while those who suffer losses in their net exports (imports) with lower (higher) world market prices will experience deteriorated terms of trade. The exact effect for individual member countries of course depends on their trade structure and the nature of world market price changes relative to their trade structure.

The overall terms of trade loss to the EU is about \$180 million, mostly due to losses in Spain, Italy and the Netherlands. Combined with the large terms of trade gains from eliminating export subsidies at the multilateral level (and a small loss from market access reform), total terms of trade gains for the EU25 are expected to be over \$5 billion.

These results show that the domestic support reform of the EU has only minimal influence on the terms of trade of the EU and of its trading partners on the aggregate. However, it does improve the EU's own economic efficiency. The aggregate welfare impact of this reform amounts to just under \$4 billion for the EU, which is about one-fourth of the total welfare gains of \$15.5 billion to the EU from both the domestic support reform the assumed multilateral reforms in export competition and market access.

8. Summary and concluding remarks

Starting with the July Package of the WTO agricultural negotiations in 2004, this paper analyze the implications of the proposal on reforming and reducing domestic support in the EU. Despite the pressure for the EU to undertake large cuts to its UR final bound AMS and its total trade distortion support, we find that these cuts can be accommodated within the existing reform

programs of the common agricultural policy of the EU, most notably under the MTR reform of the CAP, which decouples a large portion of the Blue Box payments and part of the Amber Box payments of the EU and makes them eligible for inclusion in the Green Box. Furthermore, a substantial part of the market price support currently classified and notified as Amber Box payments has already lost its relevance and can be simply eliminated without any real implication. As such, the 2001 notification total trade distortion domestic support of over 66 billion Euros can be reduced to a new level of around 25 billion Euro, implying the feasibility of cutting the EU's overall base commitment of around 113 billion Euro by 75 percent. And the final bound AMS commitment of the EU can be cut by 70 percent. This proposal of 75/70 percent cuts would effectively restrict the EU from increasing its AMS payments but would leave room for increased *de minimis* and Blue Box payments.

If the EU takes the lead to implement this proposal, other countries then need to follow suit. We conjecture a reduction formula for all the WTO members, taking into consideration their UR base commitments and their recent notifications. It is expected that most of these members, including the US, would be able to comply with the reduction formula.

Analyzing the effects of such a reduction proposal, however, is not an easy task, due to several classification, measurement and modelling issues. These issues have more or less been ignored or simplified in many previous modelling based studies of reforming/reducing domestic support. As such, this paper argues that modelling the reform and reduction of domestic support needs to be conducted in the context of the specific domestic support programs of the member countries. Failing to do so would lead to results of little policy relevance. To illustrate these points in the context of reforming the CAP of the EU for fulfilling the assumed reduction target, we carefully match notified domestic support of the EU as classified in the different WTO Boxes with the policy variables in a CGE model and database. We then examine how the reform the CAP changes the nature and size of these payments. Last, we re-assign these payments with the right policy variables according to the reform programs and adjust the fiscal expenditure on the various policy variables as necessary.

Having sorted out the measurement and modelling issues, we use the model and database to simulate the likely impact of reducing domestic support reform in the EU on a unilateral basis. The effect of doing so is benchmarked against a baseline in which no domestic support reform is conducted. In addition, for the purpose of gauging the relative importance of reforming domestic support measures in the Doha negotiations, we also compare the impact of domestic support reform with that of market access and export competition reforms at the multilateral level.

Several interesting observations from the simulation results are summarized here. First, following the domestic support reform of the EU, a structural adjustment in EU agriculture and food production would be expected, with the outputs of wheat, oilseeds, plant fibres, bovine animal and bovine meats dropping significantly. Second, the EU's net export position in the above products would deteriorate in responding to the reform, while that in other products are expected to improve. The overall size of the EU agricultural production and trade remains nearly unchanged. These results further underscore the re-distribution nature of the domestic support reform programs of the EU and they are in great contrast to what can be expected from multilateral market access and export competition reforms. Third, despite substantial allocative efficiency gains accruing to the EU from its domestic support reform, the terms of trade effect is quite limited. This result is due to the limited and offsetting price effects across different products. Lastly, although countries having distinct comparative advantages in those commodities under the EU domestic reform programs may gain from this reform, on aggregate the welfare impact on other countries is quite limited. This is because the EU domestic support reform has little aggregate trade volume and aggregate world market price impact.

Table 1. EU's base commitments in trade distorting domestic support and possible reductions (million €)

	De minimis			Total Trade Distorting Domestic Support	
	AMS	Non Product Specific	Product Specific	Blue Box	Domestic Support
Base Commitment	67159	12097	12097	21521	112874
Notif. 2000/2001	43654	538	40	22223	66455
Of which MPS	30684	0	0	0	n.a.
Reductions					
MPS reductions					
Rice	-376	0	0	0	0
Rye	-238	0	0	0	0
Other cereals	-1701	0	0	0	0
Milk	-1893	0	0	0	0
Beef	-11190	0	0	0	0
Sugar	-6090	0	0	0	0
Olive oil	-2070	0	0	0	0
Total MPS reductions	-23558	0	0	0	-23558
Non MPS reductions	17	0	-17	-18223	-18223
New domestic support*	20113	538	23	4000	24674
New Commitment*	20148	6049	6049	12097	28219

Note: This is a conservative estimate of the European Unions possible reduction in notified trade distorting support in that reforms of the cotton, tobacco and hops sectors have not been taken into account in this calculation. These three commodities account for 1,769 million € of the notified AMS of the EU in 2000/2001. Also future reforms of the EU wine, fruit and vegetable sectors are not taken into account when calculating the EU possible reduction of trade distorting domestic support. These three commodities accounted for 9,603 million € of the notified AMS of the EU in 2000/2001.

Source: WTO (2004) and own calculations.

Table 2. Agenda 2000 and MTR Intervention Price reduction

	Notification 2000/01 Administered price Euro/t	New Administered price Euro/t	External Reference Price Euro/t
Olive oil	3837.70*	n.a.	2851.80
Rice	298.40	150.0	143.30
Rye	110.25	n.a.	67.30
Other cereals	110.25	101.3	n.a
Skimmed milk powder	2055.20	1747.0	684.70
Butter	3282.00	2464.0	943.30
Beef	3242.00*	n.a.	1729.80
Sugar	631.90*	n.a.	193.80

Sources: EU (2003a, b, c), EU (2006).

Table 3: Domestic support base commitments, new commitments and latest WTO notifications (a) developed countries.

		Currency	AMS	De minimis	Blue Box	Total	Production Value	Total as percent of prod. Value	Reduction Total/AMS
			(1)	(2)	(3)	(4)=(1+2+3)	(5)	(6)=(4/5)	(7)
Iceland	Base Commitment ^(a)	Million SDR	130	11	15	156	114	137	75/70
	New Commitment ^(b)		39	2.5%	6	39			
	Notif. 2000 ^(c)		117	0	0	117			
Norway	Base Commitment	Million NOK	11449	1768	7880	21097	17682	119	75/70
	New Commitment		3435	2.5%	884	5274			
	Notif. 2001		10700	0	7240	17940			
Switzerland-Liecht.	Base Commitment	Million Sw f.	4257	730	365	5353	7304	73	75/70
	New Commitment		1277	2.5%	365	1338			
	Notif. 1998		3273	0	0	3273			
Japan	Base Commitment	Billion Yen	3973	905	452	5330	9047	59	75/70
	New Commitment		1192	2.5%	452	1333			
	Notif. 2000		709	32	93	833			
EU15	Base Commitment	Million Euros	67159	24194	21521	112874	241943	47	75/70
	New Commitment		20148	2.5%	12097	28219			
	Notif. 2000		43654	561	22223	66438			
Canada	Base Commitment	Million Can\$	4301	3074	1537	8912	30737	29	65/60
	New Commitment		1720	2.5%	1537	3119			
	Notif. 1999		939	1102	0	2041			
USA	Base Commitment	Million US\$	19103	19313	9656	48072	193129	25	65/60
	New Commitment		7641	2.5%	9656	16825			
	Notif. 2001		14413	7045	0	21458			
New Zealand	Base Commitment	Million NZ\$	288	1338	669	2296	13385	17	55/50
	New Commitment		144	2.5%	669	1033			
	Notif. 2001		0	0	0	0			
Australia	Base Commitment	Million A\$	472	3493	1747	5712	34934	16	55/50
	New Commitment		236	2.5%	1747	2570			
	Notif. 2002/03		213	20	0	233			

Table 3. (continued): (b) developing countries

		Currency	AMS (1)	De minimis (2)	Blue Box (3)	Total (4)=(1+2+3)	Production Value (5)	Reduction Total/AMS (7)
Argentina	Base Commitment	US\$	75021296	-	-	-	-	40/40
	New Commitment		45012778	5%	-	-		
	Notif. 2000/01		79599922	0	0	79599922		
Brazil	Base Commitment	US\$ thousands	912105	-	-	-	-	40/40
	New Commitment		547263	5%	-	-		
	Notif. 1997/98		82820	408714	0	491534		
Bulgaria	Base Commitment	Million Euro	520	719	180	1419	3594	40/40
	New Commitment		312	5%	180	851		
	Notif. 2001		26	9	0	35		
Colombia	Base Commitment	US\$ thousands	344733	-	-	-	-	40/40
	New Commitment		206840	5%	-	-		
	Notif. 1999		6805	0	0	6805		
Costa Rica	Base	US\$ thousands	15945	-	-	-	-	40/40
	New Commitment		9567	5%	-	-		
	Notif. 1999		1595	0	0	1595		
Israel	Base Commitment	US\$ thousands	568980	632816	163620	1360001	3272391	40/40
	New Commitment		341388	5.0%	163620	816000		
	Notif. 2002		248155	27131	0	275286		
Jordan	Base Commitment	Jordan Dinar	1333973	111066667	27766667	140167306	555333333	40/40
	New Commitment		800384	5.0%	27766667	84100384		
	Notif. 2002		743298	10775176		11518474		
Korea	Base Commitment	Billion won	1490	6427	1607	9524	32137	40/40
	New Commitment		894	5.0%	1607	5715		
	Notif. 2000		1691	526	0	2217		
Mexico	Base Commitment	Million 1991 pesos	25161	59164	14791	99116	295821	40/40
	New Commitment		15097	5.0%	14791	59470		
	Notif. 1998		3799	0	0	3799		
Morocco	Base Commitment	Million DHs	685	-	-	-	-	40/40
	New Commitment		411	5%	-	-		
	Notif. 2001		300	0	0	300		
Papua New Guinea	Base Commitment	Million US\$	33	0	-	33	-	40/40
	New Commitment		20	5%	-	-		

	Notif. -		-	-	-	-		
South Africa	Base Commitment	Million Rand	2015	9331	2333	13679	46655	40/40
	New Commitment		1209	5%	2333	8207		
	Notif. 2002		0	0	0	0		
Taipei China	Base Commitment	Million NT\$	14165	-	-	-	-	40/40
	New Commitment		8499	5%	-	-		
	Notif. -		-	-	-	-		
Thailand	Base Commitment	Million Baht	19028	-	-	-	-	40/40
	New Commitment		11417	5%	-	-		
	Notif. 1998		16402	0	0	16402		
Tunisia	Base Commitment	Millions of Dinars	59	748	187	994	3738	40/40
	New Commitment		35	5%	187	596		
	Notif. 2000		0	26	0	26		
Venezuela	Base Commitment	US\$ thousands	1130667	-	-	-	-	40/40
	New Commitment		678400	5%	-	-		
	Notif. 1998		210578	0	0	210578		

Notes:

(a) Base commitments of trade-distorting domestic support

The AMS (1) Base level values are taken from the Uruguay Rounds final bound AMS levels.

The permitted *de minimis* (2) payments included in the overall base level of trade-distorting domestic support are calculated as 5/10 percent of the total value of agricultural production as defined by an average production value in a given reference period (column (5)) multiplied by 2 (total value of non product and product specific *de minimis*).

Blue Box (3) payments included in the Total Base Level of all trade distorting support is the higher of existing Blue Box payments during the 1995–2000 period or 5 percent of the value of agricultural production (5).

The Total (4) value of overall base level of support is column (1) + (2) + (3)

The reference value of agricultural production (5) in OECD countries is calculated as the average production value in the period 1999–2002 using values found in the PSE Tables. For other countries an average of the reported total value of agricultural production found in the WTO notifications has been used where available.

In column (6) the Total value of the overall base level of all trade-distorting domestic support is calculated as a percentage of the value of agricultural production with Iceland having the largest percentage value and Australia the lowest among developed countries.

In column (7) the assumed reduction commitments for the overall base level of trade distorting domestic support and the AMS is specified, where developing countries with the highest level of possible trade distorting domestic support as defined in column (6) making the largest reductions

(b) New commitments

The AMS is reduced by 10 per cent less than the overall base level of trade distorting domestic support.

The permitted *de minimis* value of domestic support is reduced from 5/10 percent of agricultural production value, to 2.5/5 percent.

Blue Box payments are limited to 5 percent of the agricultural production value found in column (5).

The Total overall base level of domestic support is reduced by the percentage found in column (7)

(c) The latest notification to the WTO.

Table 4. Proposed domestic support reductions in the United States, million US\$.

	<i>De minimis</i>			Blue Box	Total Trade Distorting Domestic Support
	AMS	Non Product Specific	Product Specific		
Base Commitment	19103	9656	9656	9656	48072
Notif. 2001	14413	6828	217	0	21458
of which MPS	5826	0	0	0	n.a.
Reductions					
MPS reductions					
Milk	-4483	0	0	0	-4483
Non MPS reductions	206	-4640	-206	4640	0
New domestic support	10136	2188	11	4640	16975
New Commitment	7641	4828	4828	9656	16825

Source: WTO (2004) and own calculations.

Table 5. Nominal domestic support moved into the Green Box, million €

	2001	2015	Doha	2015	Doha
	EU15			EU10	
Blue Box					
Fixed hectare premiums	18031	17504	1961	4063	0
Fixed livestock premiums	5398	7855	2086	952	0
Total	23429	25358	4047	5229	0
Amber Box					
non-exempt direct payments					
Milk premiums*	0	2936	0	476	0
(Olive oil)**	2469	2446	622	0	0
Tobacco	964	952	467	0	0
PBF	88	216	0	0	0
Green Box					
Extensification premium	914	1013	0	213	0
Single farm payment	0	0	28026	0	5814

Notes: * New agenda 2000 compensatory payments given to dairy farmers; ** Direct aid given to olive oil farmers, but seems only to be included under the MPS in the Amber Box.

Table 6. Change in primary and secondary agricultural production, internal and external trade of the EU, by commodity.

	% Change in production				% Change in intra trade					% Change in extra trade									
	Total	Contributions from			Total	Contributions from				Total	Contributions from			Total	Contributions from				
	Prod.	Domestic support	Export Comp.	Market access	Trade	Mill. \$	Domestic support	Export Comp.	Market access	Import	Mill. \$	Domestic support	Export Comp.	Market access	Export	Mill. \$	Domestic support	Export Comp.	Market access
Paddy rice	-14.7	7.1	-1.4	-20.3	-32.5	-127	6.1	1.1	-39.7	81.4	74	-22.1	-5.7	109.2	83.2	75	39.0	7.5	36.7
Wheat	-3.2	-5.8	-0.6	3.2	0.4	115	-0.9	2.3	-1.0	18.1	76	30.0	-21.5	9.6	-10.8	-132	-20.0	-5.0	14.2
Other grains	-6.4	-2.3	-3.6	-0.5	-3.7	33	-1.6	1.1	-3.1	18.6	105	13.8	-7.0	11.8	-42.4	-317	-13.0	-29.3	0.0
Vegetables fruits and nuts	1.3	2.4	0.0	-1.1	-3.2	-1071	1.7	0.5	-5.4	2.7	236	-7.6	-1.7	11.9	19.9	864	8.3	-3.1	14.7
Oilseeds	-14.6	-13.7	0.6	-1.4	-8.3	-38	-11.1	1.2	1.7	12.2	522	16.0	-0.3	-3.5	-26.2	-122	-17.2	1.8	-10.7
Sugar cane and beet	0.1	0.1	-0.1	0.0	0.2	0	0.0	0.1	0.1	-0.2	0	0.0	-0.2	0.0	-0.6	0	0.1	0.2	-0.8
Plant based fibbers	-22.7	-25.0	1.8	0.5	-35.0	-173	-35.1	1.7	-1.6	9.3	118	10.2	-1.6	0.7	-22.1	-204	-26.1	2.3	1.8
Other crops	3.4	3.0	0.4	0.0	-0.5	-260	1.6	0.5	-2.6	-6.2	-425	-9.2	-1.4	4.3	18.0	1157	11.1	2.1	4.8
Bovine animals	-12	-8.1	-0.6	-3.2	-15.4	-67	-12.1	0.5	-3.8	51.4	166	54.6	-5.4	2.2	-39.0	-363	-46.8	4.0	3.9
Other animals	2.7	1.1	0.4	1.1	1.4	-21	0.6	0.6	0.2	-1.9	-29	-2.8	-1.8	2.6	4.1	93	2.8	0.4	0.9
Raw milk	-0.1	0.2	-0.2	-0.1	2.2	-2	0.6	0.9	0.7	2.2	2	0.6	0.9	0.7	0.0	-5	-0.1	0.1	-0.1
Wool	42.3	33.8	6.4	2.0	43.9	192	36.0	6.3	1.7	-17.5	-134	-13.6	-2.9	-1.1	50.7	484	40.1	8.1	2.6
Bovine meat products	-10.6	-2.9	-3.3	-4.5	-30.1	-1740	-9.8	0.9	-21.1	56.6	2216	19.4	-3.1	40.4	-86.1	-1250	-5.3	-88.6	7.8
Other meat products	2.6	0.4	0.4	1.8	-1.0	-267	2.7	0.4	-4.0	85.6	703	-2.6	-8.3	96.5	49.0	3063	4.8	4.6	39.7
Vegetable oils and fats	-2.4	-1.3	0.3	-1.4	-13.1	-380	-4.2	0.8	-9.8	39.6	617	9.7	-3.4	33.3	-2.9	-19	-12.9	2.7	7.2
Dairy products	-0.8	0.5	-1.0	-0.4	0.7	-672	0.4	6.6	-6.3	17.3	419	-4.2	-58.2	79.7	-32.7	-1049	3.2	-57.4	21.6
Processed rice	-24.6	0.5	-4.7	-20.4	-55.9	-314	1.2	1.0	-58.2	80.7	244	-1.5	-1.6	83.8	-64.6	-91	1.7	-68.5	2.2
Sugar	0.3	0.0	0.1	0.1	-4.8	-90	-0.3	5.9	-10.4	-13.9	-362	-0.1	-8.9	-4.8	-54.8	-226	-0.6	-70.3	16.1
Other processed foods	-0.3	-0.1	0.0	-0.2	-2.0	-1001	-0.1	0.8	-2.7	7.2	1282	-0.1	-3.2	10.5	3.0	786	-0.1	-3.8	6.9
	-1.0	-0.2	-0.3	-0.4	-3.9	-5884	-0.3	1.6	-5.1	10.8	5830	1.0	-4.9	14.8	1.6	2745	-0.3	-9.8	11.7

Source: Authors' own calculations.

Table 7. Change in primary and secondary agricultural production, internal and external trade of the EU, by member state.

	% change in production				% change in Intra Trade										% change in Extra Trade									
	Total	Contributions from			Total	Contributions from				Total	Contributions from				Total	Contributions from				Total	Contributions from			
		Domestic	Export	Market		Domestic	Export	Market	Domestic		Export	Market	Domestic	Export		Market	Domestic	Export	Market					
Prod.	support	Comp.	access	Import	Mill. \$	support	Comp.	access	Export	Mill. \$	support	Comp.	access	Import	Mill. \$	support	Comp.	access	Export	Mill. \$	support	Comp.	access	
Belgium/Lux.	-2.3	-1.4	0.0	-0.9	-4.5	-521	-0.3	1.6	-5.8	-5.0	-654	-2.1	1.5	-4.4	9.7	355	-0.2	-4.3	14.2	0.1	90	-3.9	-7.3	11.3
Denmark	1.9	1.1	-0.1	0.9	-2.2	-91	1.3	1.2	-4.6	-2.0	-223	0.6	3.5	-6.1	9.0	120	-0.5	-4.6	14.1	8.7	485	2.9	-6.0	11.8
Germany	-0.3	0.1	0.0	-0.4	-2.0	-811	0.2	1.7	-3.9	-2.6	-694	0.7	1.7	-5.1	7.5	560	-2.4	-6.9	16.8	3.3	451	0.6	-9.9	12.7
Greece	-3.0	-2.0	-0.2	-0.8	-2.0	-73	0.5	1.7	-4.2	-13.6	-202	-6.9	1.0	-7.7	12.6	158	5.9	-3.4	10.1	-2.4	-13	-3.8	-3.3	4.7
Spain	-1.9	-0.6	0.0	-1.3	-3.9	-301	-0.3	1.7	-5.4	-4.6	-794	0.4	0.7	-5.6	14.2	759	6.7	-3.0	10.4	3.0	191	0.6	-5.3	7.8
France	-0.3	0.1	-0.1	-0.3	-2.5	-533	-0.9	1.2	-2.9	-2.1	-451	0.6	1.7	-4.5	6.1	345	-0.8	-6.1	12.9	-2.6	94	-1.8	-9.5	8.8
Ireland	-10.3	-8.5	-0.2	-1.6	-8.6	-226	-3.2	0.0	-5.4	-14.2	-650	-13.0	3.7	-4.9	21.5	157	9.2	-4.3	16.6	-2.1	7	1.6	-9.2	5.5
Italy	-1.5	-0.1	-0.5	-0.9	-4.5	-602	-0.9	2.7	-6.3	-6.9	-715	1.2	-1.2	-6.9	18.8	994	3.5	-6.8	22.1	7.4	483	1.4	-8.2	14.3
Netherlands	-1.4	-0.3	-0.2	-0.9	-12.9	-1115	-0.3	1.1	-13.7	-1.7	-703	-0.8	2.5	-3.4	13.7	981	-0.2	-2.9	16.8	4.1	534	0.4	-8.5	12.2
Austria	0.1	0.1	-0.3	0.2	-1.4	-107	0.5	2.1	-4.0	-4.2	-94	0.2	-0.2	-4.1	9.4	65	-3.2	-13.5	26.0	14.0	113	2.1	-9.4	21.3
Portugal	-0.9	0.0	-0.1	-0.8	-4.0	-142	-1.3	1.0	-3.7	-6.8	-65	-2.2	0.3	-4.9	8.2	127	0.4	-2.2	10.0	2.7	18	2.4	-5.2	5.5
Finland	0.0	0.2	-0.3	0.0	-4.7	-71	-0.2	0.9	-5.4	-0.4	-14	0.0	4.5	-4.8	5.8	36	-2.4	-4.0	12.2	-7.3	-10	-0.2	-16.5	9.4
Sweden	3.6	-0.2	-0.3	4.2	-0.4	-49	1.3	1.3	-3.1	-1.7	-34	1.9	1.0	-4.6	11.5	78	-2.8	-7.4	21.7	40.0	447	1.1	-10.2	49.0
United Kingdom	-1.6	-0.9	0.0	-0.6	-3.2	-658	0.4	1.9	-5.5	-7.5	-434	-2.2	-0.1	-5.2	8.8	798	2.4	-4.3	10.7	-7.0	-123	-6.3	-7.7	7.0
Cyprus/Malta	-13.4	-0.2	-12.1	-1.1	-9.8	-36	-0.8	0.6	-9.6	0.9	-7	-0.6	7.5	-6.0	7.6	30	0.4	-7.9	15.1	-25.0	-94	0.0	-30.9	6.0
Czech Republic	-1.6	0.9	-2.2	-0.3	-4.0	-113	-1.7	-0.2	-2.1	-2.8	-38	0.1	2.6	-5.5	-0.5	-1	-7.9	-5.5	12.9	-40.2	-149	0.4	-48.3	7.7
Estonia	-3.7	2.0	-4.9	-0.7	-4.3	-21	-1.2	-0.1	-3.1	0.0	-6	3.6	2.5	-6.1	8.6	16	1.8	-5.0	11.9	-7.0	-10	4.1	-17.0	5.9
Hungary	8.9	6.6	-0.6	2.9	-0.7	-24	-0.5	0.3	-0.5	0.7	10	11.0	2.9	-13.2	15.0	57	1.7	-6.8	20.1	27.0	455	1.8	-11.5	36.7
Latvia	-0.4	1.1	-0.3	-1.2	-9.7	-54	-0.9	2.0	-10.7	8.6	7	8.0	-0.3	0.9	24.8	66	-0.1	-3.8	28.7	-1.5	3	-3.4	-5.9	7.8
Lithuania	-1.2	1.4	-2.3	-0.4	-3.8	-29	-3.1	2.7	-3.3	-6.1	-28	-0.3	1.3	-7.1	6.7	17	-3.7	-3.4	13.8	-11.6	-17	-1.2	-21.2	10.8
Poland	-0.1	1.1	-0.9	-0.3	-4.1	-269	-1.5	1.0	-3.7	-1.7	-66	3.6	1.4	-6.6	9.4	109	-4.8	-5.2	19.4	-9.6	-90	1.5	-21.1	10.1
Slovakia	0.3	1.0	-0.5	-0.2	-0.3	-15	-0.8	2.0	-1.5	-0.8	-5	1.6	-0.4	-2.0	-5.5	-7	-10.1	-5.6	10.2	-19.3	-15	-0.2	-23.2	4.0
Slovenia	-6.5	1.8	-9.4	1.1	-3.2	-24	1.0	-1.8	-2.5	-6.7	-26	14.9	4.1	-25.7	6.0	11	-2.4	-9.0	17.5	-26.7	-107	0.7	-46.3	19.0
EU25	-1.0	-0.2	-0.3	-0.4	-3.9	-5884	-0.3	1.6	-5.1	-3.9	-5884	-0.3	1.6	-5.1	10.8	5830	1.0	-4.9	14.8	1.6	2745	-0.3	-9.8	11.7

Source: Authors' own calculations.

Table 8. Primary agricultural factor income, percentage change

	Contributions from			
	Total % change	Domestic support	Export Comp.	Market access
Belgium/Lux.	-5.6	-0.9	-2.2	-2.5
Denmark	-2.5	-0.5	-4.3	2.3
Germany	-3.3	1.4	-2.7	-1.9
Greece	-4.1	-2.0	-1.0	-1.1
Spain	-2.7	0.1	-1.2	-1.7
France	-3.7	0.2	-2.6	-1.3
Ireland	-7.1	-0.5	-2.9	-3.7
Italy	-1.1	0.0	-0.6	-0.5
Netherlands	-4.3	-0.8	-2.7	-0.8
Austria	-1.9	0.7	-1.4	-1.1
Portugal	-2.2	0.5	-1.5	-1.2
Finland	-4.7	0.2	-4.2	-0.8
Sweden	-1.4	2.1	-3.6	0.1
United Kingdom	-0.9	3.6	-2.3	-2.2
EU15	-2.9	0.5	-2.0	-1.3
Cyprus/Malta	-3.9	-0.2	-4.4	0.7
Czech Republic	-2.7	0.3	-2.3	-0.6
Estonia	2.2	2.6	-2.0	1.6
Hungary	0.5	0.1	-2.7	3.1
Latvia	-6.3	0.0	-0.3	-6.0
Lithuania	-2.0	0.0	-3.0	1.0
Poland	-2.3	-0.8	-0.9	-0.6
Slovakia	-1.2	0.2	-0.7	-0.7
Slovenia	-4.7	-0.3	-5.3	0.9
EU10	-1.9	-0.3	-1.6	0.0

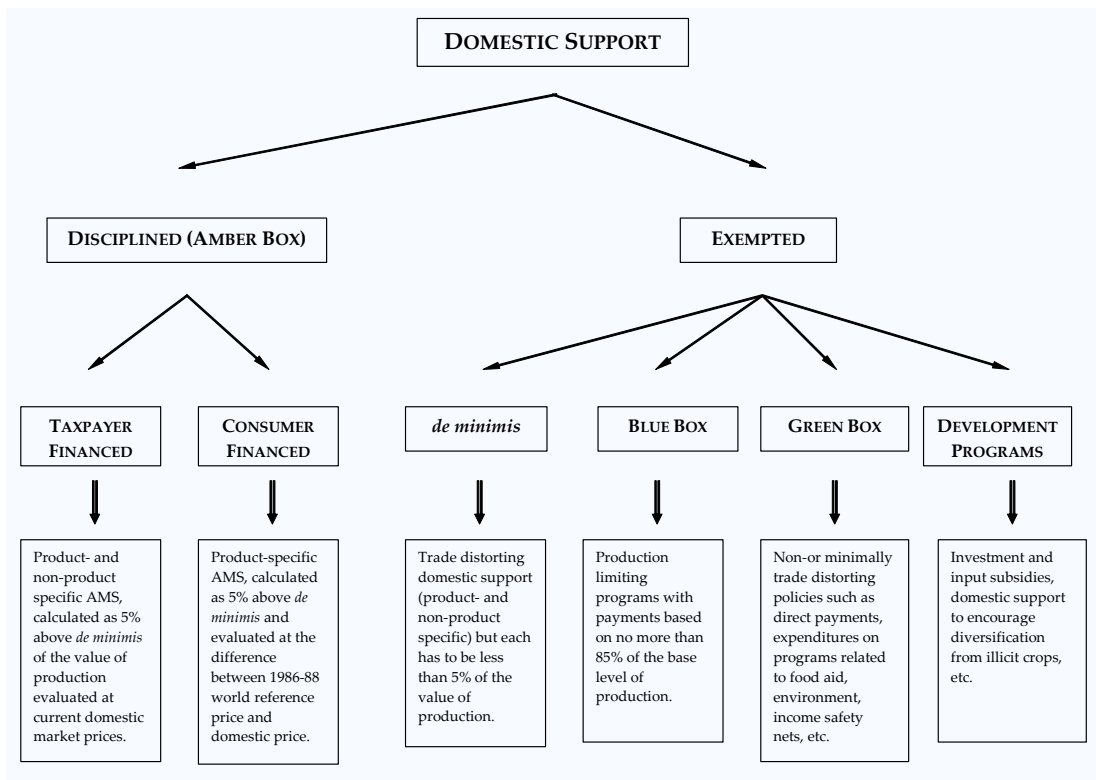
Source: Authors' own calculations.

Table 9. Changes in welfare (equivalent variation), million US\$.

	Total EV	Allocative efficiency	Contribution from			Terms of trade	Contribution from			Others
			Domestic Support.	Export Comp.	Market access		Domestic Support.	Export Comp.	Market access	
Belgium/Lux.	461	381	149	48	184	203	-33	291	-55	-123
Denmark	519	236	51	134	52	306	-18	246	78	-23
Germany	2589	1216	410	376	431	966	230	814	-78	407
Greece	342	340	250	22	67	62	-55	122	-5	-60
Spain	941	857	483	68	307	39	-342	528	-148	46
France	1951	1039	355	427	257	795	146	676	-27	117
Ireland	226	464	346	26	92	-238	-45	-114	-78	0
Italy	1931	1114	309	161	644	499	-265	784	-21	318
Netherlands	980	877	70	214	595	178	-104	390	-108	-75
Austria	357	163	47	35	80	172	20	136	16	22
Portugal	215	193	91	14	88	26	-8	34	1	-4
Finland	265	113	26	53	33	134	9	124	1	18
Sweden	378	185	46	85	53	147	17	48	82	46
United Kingdom	2601	1597	761	80	756	920	36	824	59	84
Cyprus/Malta	-18	56	8	35	14	-24	-4	-28	7	-50
Czech Republic	124	145	80	55	9	22	44	-17	-5	-43
Estonia	33	30	16	12	2	15	-2	10	7	-12
Hungary	353	183	124	41	18	216	46	88	82	-46
Latvia	70	36	17	-2	20	31	4	27	0	3
Lithuania	239	83	64	15	5	151	13	132	6	5
Poland	779	539	391	105	44	289	117	172	-1	-50
Slovakia	175	44	32	9	3	127	10	119	-2	4
Slovenia	9	74	23	60	-9	9	2	-3	9	-73
EU25	15519	9965	4149	2073	3745	5044	-180	5403	-179	510

Source: Authors' own calculations.

Figure 1. Measures of Domestic Support and the WTO



Notes: The 5% above *de minimis* applies for the sum of taxpayer- and consumer-financed support.

The *de minimis* exemption can include consumer-financed support.

Source: Reproduced from Baffes and de Gorter et al. (2005).

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