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Establishing Domestic Support Commitments
Through a Harmonization Formula
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Establishing Domestic Support Commitments through a Harmonization Formula[1]

Executive Summary

The WTO commitments on trade-distorting domestic support (Total Aggregate Measurement of Support or Total AMS) allow for very unequal levels of such support among members in terms of support expressed as proportion of value of production. Two ideas of the proposal of the United States of 2000 could help to make commitments on distorting support more equal across members. One is to establish commitments as a percentage of value of production; the other one is to reduce support to a given level (*i.e.*, percentage) instead of reducing it by a given proportion as in the Uruguay Round. These two ideas make it possible to use a harmonizing formula to establish the end-point of the reduction for each member.

Using a harmonizing formula to establish Total AMS end points parallels the use of such a formula to establish tariff reductions. A harmonizing formula generates larger reductions for members who support proportionally more in relation to the size of their agriculture, and it imposes at least some reduction also on members who support proportionally less. The analysis uses members=final bound commitments on Total AMS and values of production to examine the effects of applying the Swiss formula with a range of parameter values. It also examines the possibility of applying the harmonizing formula to product-specific AMS commitments, which would reduce the dispersion across products for a given member.

Applying the Swiss formula to Total AMS expressed as a percentage of value of production results in a reduction of different severity depending on the formula parameter. With a parameter of 12, high-support members, such as Norway and Switzerland, would reduce support from about 60 percent to 10 percent of value of production. The relatively high support levels in Japan and the European Union would be reduced to about 9 percent of value of production. The United States would, with the same parameter, reduce from 10 percent of value of production to 5 percent, and Canada would reduce from 16 to 7 percent. Larger parameter values, such as 30, would preserve more of the differences across members in percentage level of support. However, even the high parameter values would generate lower Total AMS commitments for high-support members than those resulting from another 20 percent cut.

Introduction

The Uruguay Round commitments on trade-distorting (TD) domestic support are considered ineffective in bringing about more equal levels of support in proportion to value of agricultural production across member countries. Two ideas of the U.S. proposal in 2000 on domestic support, *viz.*, the notions of expressing TD domestic support as a percentage of value of agricultural production, and taking commitments to reduce support to a given level instead of reducing it by a given proportion, may be useful in making commitments on TD support more equal across members.

The effectiveness of taking commitments as proposed by the United States depends on the level to which support is to be reduced. If this level is high, many members would not need to take any reduction commitment at all. If the level is low, some members would resist taking commitments to reduce TD support to that level.

The use of a harmonization formula can address the problem of large differences across members in how much TD support they can provide in relation to the size of their agricultural sectors. Harmonization formulas, such as the Swiss formula, have been used to commit to reductions in *ad valorem* tariffs. If commitments on TD support are taken on support as a percentage of value of production, and if the commitment is to reduce to a given end point level, a harmonization formula can be used to generate each member=s end point. This would bring about larger reductions for members who provide proportionally more support in relation to the size of their agriculture and at least some reductions also for members who provide proportionally less support.

While it is too early to speculate on the outcome of the negotiations and the nature of the commitments members will take, a harmonization formula approach could possibly be useful if there were difficulties in establishing a given and common end point for reductions.

The analysis uses members=final bound commitments on Total AMS and value of production estimates to explore the effects of applying the Swiss formula with a range of parameter values. It also examines the possibility of applying the harmonization formula to product-specific AMS commitments, which would reduce the dispersion of support across products for a given member.

Nature of the Uruguay Round Commitments

In the Uruguay Round countries committed to reduce TD domestic support over a certain number of years. TD support is measured as the Total Aggregate Measurement of Support, which is defined in the WTO Agreement on Agriculture. Developed countries committed to reduce Total AMS by 20 percent over six years from a Base amount of support derived from the 1986-88 support. Developing countries are reducing Total AMS by 13.3 percent over ten years.

The nature of the reduction commitment, *i.e.*, a reduction by a given percentage, is said to have contributed to the weakness of the discipline on TD domestic support. This characteristic is separate from other characteristics that may have contributed to the weakness of the discipline, such as the size of the reduction commitment (modest in the eyes of some), the sector-wide nature of the reduction commitment, and the definition and measurement of TD support.[2]

The commitment to reduce by a given percentage (a Adepth-of-cut@ commitment) meant that all members with a Total AMS commitment committed to reducing TD domestic support by the same proportion[3]. This characteristic of the commitment perpetuates the differences between those members who provided high TD support in 1986-88, relative to value of production, and those who provided low TD support. In other words, TD support in relation to the size of members= agriculture sectors is not being made more equal across members.

If renewed depth-of-cut commitments result from the present negotiations, the existing differences in the rate of TD support (support in relation to value of production) would be preserved. Of course, even with a depth-of-cut commitment, members with the lowest TD support would need to commit to bring it down to near zero or below a *de minimis* level. This would be a slow way, however, to achieve more equal rates of TD support across members since members with relatively high rates of support would be able to retain this status for some time.

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2. For discussions of these issues, see, for example, Brink (2000), Burfisher (2001), Kennedy *et al*. (2001) and Roberts *et al*. (2001).

3. AAll members@ here refers to all members with a Total AMS commitment (currently 32). Most members have no or a zero Total AMS commitment, allowing them to provide trade-distorting support only up to *de minimis* levels.

Feasibility of Reaching an End-point Commitment through a Harmonization Formula

End-Point Commitments and Support as Percentage of Value of Production

The United States has proposed that members, instead of taking depth-of cut commitments, commit to reduce TD support to a given level (WTO 2000a, b). Such a commitment might be called an "end-point" commitment. The United States also proposes that the end point of a member=s reduction commitment would be the amount of support corresponding to a given percentage of the member=s value of production in a fixed base period. This given percentage would be the same for all members. All members would reach the end point after the same number of years of implementing reductions.

The notion of expressing a member=s support in relation to the member=s value of production carries the seed to achieving commitments on TD support that are more equal across members. Under the U.S. proposal members with large agricultural sectors would be able to provide support in larger absolute amounts than members with small sectors, but the amounts of support in proportion to value of production would be equal.

At the same time, some high-support members might resist taking commitments to reduce TD domestic support to a common percentage of value of production across all members because high-support members would then need to implement much larger yearly reductions. Low-support members would argue that this would be precisely the point of taking end-point commitments. These opposing views could lead to less ambitious compromises of different kinds. One compromise outcome might be that high-support members indeed commit to reduce TD support through larger yearly reductions but not large enough to arrive at the same end point arrived at by low-support members through yearly reductions. An alternative compromise outcome might be that all members take commitments to reduce to a common percentage end point, but this percentage is so high that low-support or even medium-support members do not need to carry out any significant reductions.

Harmonization Formulas

Categorizing members as high-support and low-support members is fraught with difficulty. Exactly how the commitments of members in the two categories would differ would also be difficult to establish. A more systematic approach, addressing the concerns of both high-support and low-support members, could

be needed. One such approach is to express TD support as a percentage of value of production in combination with a method of harmonizing these percentages across members. Harmonization of the percentage of support would fall short of bringing the percentage down to a common low level for all members. It would nevertheless achieve a larger proportional reduction for high-support members than for low-support members without resorting to that particular categorization. It would reduce, but not eliminate, disparities in percentage support across members.

Harmonization formulas were considered in the Tokyo round when ways were sought to reduce disparities in *ad valorem* tariffs across countries and products. The harmonization formula eventually chosen was the so-called Swiss formula, with a parameter value of 16 for some countries and 14 for others (Wainio 1999).

With TD support being expressed as a percentage of value of production, harmonizing formulas can be applied to these percentages. The starting point of the reduction commitment would derive from, say, each member=s final bound Total AMS commitment expressed as a percentage of the value of production in some fixed base period. Applying the harmonization formula to this percentage would yield the percentage of value of production to which the member=s TD support would need to be reduced. This percentage would then be multiplied by value of production to generate the absolute amount of TD support which the member would commit not to exceed. This amount would be the end-point commitment.

Effects of Swiss Formula Harmonization of End-Point Commitments

Data Development

The analysis assumes that reduction commitments will be based on the final bound Total AMS commitments applying from the year 2000 (from 2004 for developing countries and other years for more recently acceded members).

Members= final bound Total AMS commitment amounts are readily available from their schedules (Part IV, Section I). Estimates of value of production are not as easily available for some members. However, precise estimates are not needed for the present analysis, the objective being to illustrate how a harmonization formula would work rather than to estimate in detail the commitments members would face if the formula is applied.

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The Annex of this paper discusses the development of data for this exercise. The data are in Table 3 in the Annex. It focuses on value of production data rather than other estimates of the size of the agricultural sector, such as value added (contribution to GDP). The difference between the two measures is greater in developed countries than in developing countries that rely less on purchased inputs in farming. If value added were used in the denominator, all countries= percentages would be larger than if value of production were used but a developed country=s percentage would increase by more than the percentage of a developing country with the same value of production.

The Swiss Formula

The Swiss formula is used to illustrate how a harmonization formula in combination with an end-point commitment would work when applied to TD support expressed as percentage of value of production. The Swiss formula is chosen for the illustration because it is relatively well known after its application to tariffs in the Tokyo round. Other harmonizing formulas could merit corresponding examination. The Swiss formula is Ending percentage = (Starting percentage * a)/(Starting percentage + a).

The harmonizing effect of the Swiss formula is inversely related to the size of the parameter Aa@. For example, if the starting percentage is 50 percent, a parameter of 100 yields an end point of 33 percent, while a parameter of 50 yields 25 percent and a parameter of 10 yields 8 percent as the end point (see Table 1). For a parameter of 2, all starting percentages between 10 and 100 percent result in an end point of 2 percent. A parameter of 16 percent, as applied to tariffs in the Tokyo round, would bring a starting percentage of 50 percent down to an end point of 12 percent.

End Point Commitments of Quad Countries

The starting percentage for the United States is 10 percent (see Table 2). Parameter values between 30 and 56 would result in an end point of 8 percent, *i.e.*, a small but still visible reduction. In order to bring the U.S. end point down to 5 percent, *i.e.*, the same as the present *de minimis* percentage for developed countries, the parameter would need to be no larger than 12. End points of 8 percent and 5 percent translate into commitment amounts of about US$16 billion and 9 billion, respectively.

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Table 1. Swiss Formula Results for Different Starting Percentages and Parameter Values

Starting Percentage	Ending percentage									
	If a = 100	If a = 50	If a = 30	If a = 15	If a = 12	If a = 10	If a = 8	If a = 6	If a = 4	If a = 2
%	-- % --									
100	50	33	23	13	11	9	7	6	4	2
90	47	32	23	13	11	9	7	6	4	2
80	44	31	22	13	10	9	7	6	4	2
70	41	29	21	12	10	9	7	6	4	2
60	38	27	20	12	10	9	7	5	4	2
50	33	25	19	12	10	8	7	5	4	2
40	29	22	17	11	9	8	7	5	4	2
30	23	19	15	10	9	8	6	5	4	2
20	17	14	12	9	8	7	6	5	3	2
10	9	8	8	6	5	5	4	4	3	2

Note: Swiss formula: Ending percentage = (Starting percentage * a)/(Starting percentage + a)

The EC starting percentage of 37 percent and Japan=s starting percentage of 40 percent would both generate an end point of 17 percent when the parameter is 30. A parameter of 12 would yield an end point of 9 percent for both the EC and Japan. This translates into 16 billion euro for the EC and 886 billion yen for Japan. Interestingly, even a large parameter value, such as 30 or 50, reduces the commitment for Japan and the EC by more than a 20 percent depth-of-cut commitment would do.

Canada, with a starting percentage of 16 percent, would experience a reduction to 10 percent with a parameter of about 30, and a reduction to 5 percent with a parameter of about 8. A parameter of 12 would bring the percentage to 7 percent, corresponding to C$1.9 billion.

End Point Commitments of Other Members

Norway, Switzerland and Iceland stand out as highest-support members, with Total AMS commitments of about 60 percent of value of production (see Table 2). However, a Swiss formula reduction with a parameter of 12 would bring the percentage down to 10 percent, just one point above the end point of Japan and the EC. Thus, a parameter of 12 has the potential to generate a dramatically lower end point for the highest supporting members while also resulting in a reduction by half for relatively low-support members, such as the United States.

Table 2. Swiss Formula Results by Member for Selected Parameter Values

Member	Starting Percentage	Ending percentage									
		If a = 100	If a = 50	If a = 30	If a = 15	If a = 12	If a = 10	If a = 8	If a = 6	If a = 4	If a = 2
	%	-- % --									
Quad											
Canada	16	14	12	10	8	7	6	5	4	3	2
EC	37	27	21	17	11	9	8	7	5	4	2
Japan	40	29	22	17	11	9	8	7	5	4	2
USA	10	9	8	8	6	5	5	4	4	3	2
											0
Other											0
Argentina	1	1	1	1	1	1	1	1	1	1	1
Australia	2	2	2	2	2	2	2	2	2	1	1
Brazil	2	2	2	2	2	2	2	2	2	1	1
Bulgaria	24	19	16	13	9	8	7	6	5	3	2
Colombia	2	2	2	2	2	2	2	2	2	1	1
Costa Rica	1	1	1	1	1	1	1	1	1	1	1
Croatia	5	5	5	4	4	4	3	3	3	2	1
Cyprus	14	12	11	10	7	6	6	5	4	3	2
Czech Rep.	11	10	9	8	6	6	5	5	4	3	2
Hungary	0	0	0	0	0	0	0	0	0	0	0
Iceland	58	37	27	20	12	10	9	7	5	4	2
Israel	16	14	12	10	8	7	6	5	4	3	2
Jordan	0	0	0	0	0	0	0	0	0	0	0
Korea	5	5	5	4	4	4	3	3	3	2	1
Lithuania	6	6	5	5	4	4	4	3	3	2	2
Mexico	35	26	21	16	11	9	8	7	5	4	2
Morocco	2	2	2	2	2	2	2	2	2	1	1
New Zealand	3	3	3	3	3	2	2	2	2	2	1
Norway	61	38	27	20	12	10	9	7	5	4	2
Papua N. G.	n.a.	--	--	--	--	--	--	--	--	--	--
Poland	26	21	17	14	10	8	7	6	5	3	2
Slovak Rep.	18	15	13	11	8	7	6	6	5	3	2
Slovenia	9	8	8	7	6	5	5	4	4	3	2
South Africa	5	5	5	4	4	4	3	3	3	2	1
Switzerland	60	38	27	20	12	10	9	7	5	4	2
Thailand	4	4	4	4	3	3	3	3	2	2	1
Tunisia	2	2	2	2	2	2	2	2	2	1	1
Venezuela	13	12	10	9	7	6	6	5	4	3	2

Source: Starting percentages from Table 3 (see Annex of this paper).
n.a.: not available

For the lowest-support members (Argentina, Australia, Brazil, Colombia, Costa Rica, Hungary, Jordan, Morocco, New Zealand, Tunisia) the parameter value does not matter. If the starting percentage is as low

as 2 percent, the parameter needs to be as low as 4 in order to yield a noticeable reduction in the end point. For members with a low starting percentage of around 5-6 percent (Croatia, Korea, Lithuania, South Africa), the parameter matters little: any value between 12 and 30 would generate an end point that is reduced to about 4 percent. However, for Ain-between@countries (Bulgaria, Cyprus, Czech Republic, Mexico, Poland, Slovak, Slovenia, Venezuela), the parameter can matter a great deal.

Related Issues in Establishing Percentage-Based End-Point Commitments

Product-Specific End-Point Commitments

The analysis assumes that future commitments on TD support would continue to be taken on Total AMS. However, other definitions of TD support have been proposed for commitment purposes, such as including support that presently is exempt as blue box support or exempt as *de minimis* support, or even including certain support that is exempt as green box support in developed countries. Definitions like these can all be accommodated under the harmonization formula approach as long as the support amount is expressed on a Anormalized@basis across members, such as a percentage of value of production.[4]

It has also been proposed that commitments be taken to reduce individual product-specific AMS amounts instead of the sector-wide Total AMS.[5] This can be accommodated under the harmonization formula, since values of production are usually available for individual products as well as for the sector as a whole.

If commitments were to be product-specific and based on final bound Total AMS commitments, a way would need to be found to go from the Total AMS commitment to individual AMS commitments. The simplest way would be to allow each member to allocate its Total AMS commitment amount as individual product-specific AMS amounts, as well as a non-product-specific AMS amount, as the member desires. More complicated ways would stipulate rules for the allocation, such as requiring each product-specific AMS to account for the same share of the total of all commitments as it did in Current Total AMS of a particular year.

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4. Applying the formula to country-specific absolute amounts of support without normalizing would give nonsensical results if different currencies and multiples of currency units are used.

5. If the end-point of a Total AMS commitment is low enough to impose an effective constraint on distorting support, there would be less need to pursue product-specific commitments.

The first method allows a member to concentrate TD support on certain products by effectively giving any Aunused room@ below the old commitment to one or more particular products, or to the sector as a whole. Other products would thus not be entitled to support above any *de minimis* level. The second method restricts the member to giving only a part of any Aunused room@ to certain products and would effectively freeze the distribution of maximum support to each product (and non-product-specific support) in the pattern of the Current Total AMS for the year chosen.

A third method, similar to the second, would be to disregard the *de minimis* exemptions used in calculating Current Total AMS. This method would thus allocate some of the Aunused room@ also to products (and non-product-specific support) excluded from Current Total AMS on *de minimis* grounds and therefore possibly raise the entitlement of some products above the *de minimis* amount even if the member had no intention of supporting those products above the *de minimis* level in the future.

In terms of constraining a member=s flexibility to manage and plan for future provision of TD support, the first method is least constraining and the second and third methods more constraining. Commitments to reduce product-specific (and non-product-specific) AMS through a depth-of-cut formula would preserve differences among individual products for any single member. Some would consider this to be a disadvantage of the depth-of-cut approach, others would see it as an advantage.

Support to each product (and non-product-specific support) can be expressed as a percentage of the product=s value of production (or sector-wide value of production). This would allow a harmonizing formula to be employed to establish end-point commitments. These commitments would lead to a reduction of the differences among the member=s products in terms of the maximum amount of TD support they can enjoy.

For this analysis, the highest product-specific AMS in percent of value of production was identified in the 1997 notifications of the United States, Canada and the EU.[6] The United States notified sugar AMS at 49 percent of value of production, followed by peanuts at 31 percent and dairy at 21 percent. Canada notified milk AMS at 14 percent of value of production, followed by sheep at 7 percent and dry beans at 6 percent.

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6. The notifications of United States (G/AG/N/USA/27) and Canada (G/AG/N/CAN/37) show values of production for each product, whether claimed as *de minimis* or not. The EU (G/AG/N/EEC/26) does not show product-specific values of production, so the 1997 values of production were estimated from AThe Agricultural Situation in the European Union - 1998 Report@, Table 3.1.1. This rough method left out many of the individual products for which the EU notifies an AMS or EMS.

The EU notified tobacco AMS at 100 percent of value of production, barley at 65 percent and beef at 63 percent. All three members also showed some product-specific AMS below the *de minimis* level of 5 percent of value of production.

Thus, each of these three members shows a considerable range across products in the support provided in relation to value of production. Applying the Swiss formula on a product-specific basis would bring about end-point commitments that were more equal across products. For example, the Swiss formula with a parameter of 12 applied to the EU tobacco AMS of 100 percent would generate an end-point of 11 percent. Applying it to a starting point of 14 percent would lead to an end-point of 6 percent.

Measuring Value of Production

The use of a harmonization formula borrowed from tariff reductions is predicated on new commitments on TD domestic support differing from the Uruguay Round commitments in two major ways. One is that commitments would be Aend-point@ instead of Adepth-of-cut@ in nature, and the other is that TD support would be expressed as a percentage of value of production (Anormalized@).

The need to express support as a percentage of value of production introduces some new measurement problems, in addition to those arising in measuring TD support itself. The value of production needs to be measured such that it represents the same kind of value in all member countries. For example, when support is provided through market price support, production is valued at supported prices and the value of production thus includes the value of support itself. This raises the value of production, relative to a member who provides the same amount of support in the form of price-related payments, which are often not included in value of production. A member relying on market price support would therefore be able to take commitments that are higher than the commitments of a member providing the same amount of support through price-related payments.

Care would need to be taken to allow members to put themselves on an equal footing in this regard by, for example, including price-related payments in the value of production. Alternatively, production could be valued at border prices, as discussed by Roberts et al. (2001). This would exclude both market price support and price-related payments from the value of production[7]. Using value added in the denominator instead of value of production could also address this problem.

7. Valuing production at border prices would also address another consequence of including support in the

Inflation Adjustment and Lagged Value of Production

If the end-point commitment is derived by multiplying the end-point percentage by the value of production in a fixed historical base period (this is what the United States proposes), the end-point commitment will be a fixed amount. This imposes a stricter limit than if the end-point commitment is derived by multiplying the end-point percentage by a rolling value of production. A rolling value of production would allow TD support to increase proportionally to real increases in value of production (for example, if production quantity rises), as well as to increase proportionally to inflation (with some lag). This could be important to those members who want to maintain their capacity to provide TD support in the face of significant inflation.

Using a rolling value of production (perhaps a rolling average for recent years) is more complicated than using a fixed value of production. For example, the current year=s value of production can only be forecasted with some degree of error, which means that governments would not know for sure what the current year=s commitment amount is. The same problem arises even if a recent previous year=s value of production is used, in cases where value of production estimates are revised over time. There might even be an incentive for governments to over-estimate value of production in the current or recent years in order to boost the amount TD support that can be provided. In other words, over time some members might evolve towards using two different values of production - the large amount for WTO purposes and the real one for policy planning.

Starting from Current Total AMS

The pattern of Current Total AMS as a percentage of value of production is not necessarily the same as for final bound Total AMS as a percentage of value of production. This is because some members use up almost all the allowance below the commitment, whereas others use up only a small portion of it. As an alternative to starting from final bound Total AMS commitments, it is possible to conceive of starting from Current Total AMS in a chosen period. This would, of course, deviate from the established practice in trade negotiations of starting from bound commitments.

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denominator of the percentage expression, *viz*. that the support percentage does not increase linearly with the amount of support. For example, the amount of support in a 40 percent country is actually more than twice as large as in a 20 percent country with the same value of production at border prices. This problem is well known from, for example, OECD Producer Support Estimates being expressed as percent of value of production at domestic prices.

Since no member has notified that it has exceeded its Total AMS commitment, no member=s Current Total AMS as a percentage of value of production is higher than the member=s Total AMS commitment as a percentage of value of production. In other words, the dispersion of members= percentage Current Total AMS is less than the dispersion of members= Total AMS commitments. This would weaken the justification for using a harmonization formula, with its dispersion-reducing effect, in the case of starting from Current Total AMS percentages.

While members usually notify a Current Total AMS that changes little from year to year, some recent developments may require particular attention. Support payments in the United States in 1999 and 2000 were much larger than in 1998, the most recent year notified. Depending on how these payments are classified, the United States might show a Current Total AMS much closer to its Total AMS commitment. This could raise the willingness of the United States to consider starting new commitments from Current Total AMS instead of from final bound commitments.

At the same time, Japan has notified a much lower Current Total AMS for 1998 than for earlier years, mainly because of changes in its rice policy that are claimed to reduce market price support and to allow for blue box exemptions. This would reinforce Japan=s resistance to taking new commitments on Current Total AMS.

Conclusions

The U.S. proposal on domestic support introduces (1) end-point commitments instead of the depth-of-cut commitment of the Uruguay Round, and (2) the expression of TD domestic support as a percentage of value of production. These two notions in combination allow for the use of a harmonization formula to establish the end-point of each member=s reduction commitment on TD support. The harmonization formula would establish end points that not only require a larger reduction from high levels of support, as a percentage of value of production, than from lower levels of percentage support, but that also impose some reductions even on relatively low support levels. This pattern of different end points for each member could be preferable to a common end point for all members at such a high level that many members do not need to reduce TD support at all.

The harmonization formula examined - the Swiss formula - would result in reduction commitments of different severity depending on the formula parameter. With a parameter of 12, high-support members, such as Norway and Switzerland, would reduce TD support from about 60 percent to 10 percent of value of production. The relatively high support levels in Japan and the EC would be reduced to about 9 percent of value of production. The United States would, with the same parameter, reduce from 10 percent of value of production to 5 percent, while Canada would reduce from 16 to 7 percent. For larger parameter values, such as 30, more of the differences across members in percentage level of TD support would be preserved. Even the high parameter values would generate commitments for high-support members that are lower than those resulting from another 20 percent cut.

The harmonization formula approach could also be applied to product-specific commitments, in which case not only the dispersion in percentage support across members but also the dispersion across products would be reduced.

Expressing TD domestic support as percentage of value of production raises some technical questions of how value of production would best be measured. This involves such issues as market price support being included in value of production while support payments are not, and the valuation of production at border prices or at domestic prices. In order to apply the formula in negotiations, it would also be necessary for members to provide estimates of their value(s) of production for an agreed upon historical period.

References

Brink, L. 2000. *Domestic Support Issues in the Uruguay Round and Beyond*, Economic and Policy Analysis Directorate, Agriculture and Agri-Food Canada, Publication 2021/E, July, Ottawa.

Burfisher, Mary (ed.), 2001, *The Road Ahead: Agricultural Policy Reform in the WTO - Summary Report*, Economic Research Service, U.S. Department of Agriculture, Agricultural Economic Report No. 797, Washington, DC.

Kennedy, P.L., Brink, L., Dyck, J., and MacLaren, D. 2001, *Domestic Support Issues in the WTO Negotiations on Agriculture*, IATRC Commissioned Paper (draft).

OECD (Organization for Economic Cooperation and Development) 2001, *The Uruguay Round Agreement on Agriculture - An Evaluation of Its Implementation in OECD Countries*, Paris.

Roberts, I., Podbury, T., and Hinchy, M. 2001, *Reforming Domestic Agricultural Support Policies through the World Trade Organization*, ABARE Research Report 01.2, RIRDC Publication No. 01/07, Canberra.

Wainio, J. 1999, AAgriculture and the Evolution of Tariff Bargaining@, Economic Research Service, U.S. Department of Agriculture, *Agricultural Outlook*, August.

WTO (World Trade Organization) 2000a, AProposal for comprehensive long-term agricultural trade reform@, submission from the United States to the June 2000 Special Session of the Committee on Agriculture, G/AG/NG/W/15, Geneva.

WTO (World Trade Organization) 2000b, ANote on domestic support reform - negotiations on agriculture@, submission from the United States to the June 2000 Special Session of the Committee on Agriculture, G/AG/NG/W/16, Geneva.

WTO (World Trade Organization) 2000c, ADomestic Support", Background Paper by the Secretariat, Committee on Agriculture, Special Session, G/AG/NG/S/1, Geneva.

Annex: Development of Data on Value of Production (Table 3)

The number of members with a Total AMS commitment is 32. This number is arrived by counting the 30 members with Total AMS commitments listed in Table 1 of G/AG/NG/S/1 (WTO 2000c), and by adding the two more recent members with Total AMS commitments (Croatia and Lithuania).

About half of the 32 members with Total AMS commitments are developed countries, who reduced their annual commitment amounts over a six-year period from 1995 and reached their final bound commitments in 2000. The other half, comprised of developing countries, are reducing their annual commitments and most will reach their final bound Total AMS commitment in 2004. The analysis uses the final bound commitments for both developed and developing country members, which means that some commitment amounts refer to 2000, some to 2004, and some to other years (for recently acceded members).

Value of production data are available from only very few of the notifications of members with Total AMS commitments. Members notifying non-product-specific AMS and claiming it as exempt on *de minimis* grounds would be expected to indicate the value of production in order to substantiate such a claim. However, this is not always done. For example, some members make such claims but provide value of production data only in response to specific questions in the Committee on Agriculture, which means that the data need to be found elsewhere than in the member=s notification.

Data on value of production from notifications and related documents (as of early 2001) is available for only ten members with Total AMS commitments (Australia, Brazil, Canada, European Communities, Hungary, Israel, Japan, Korea, South Africa, and United States), and also for four members without such commitments (Chile, India, Peru, Uruguay). However, several of the members not notifying values of production are also members of the OECD. While there may be differences in how a member=s value of production would be measured for WTO purposes and how it is measured for the purpose of estimating OECD Producer Support Estimates (PSE), these differences are minor in the context of this analysis. What matters for this analysis is not to estimate the commitment as percentage of value of production down to the closest percentage point but rather within a 5-10 percentage point range. Moreover, some members use the same data for major components in WTO domestic support and OECD PSE, which would strengthen the case for relying on OECD value of production estimates for those members in the

Table 3. Members with Total AMS Commitment: Data on Commitment and Value of Production (I)

Member	Total AMS Commitment (iii)			Value of Production (iv)					Commitment as	
	Year	Currency Units	Amount	Year	Currency Units	Value	Exchange Rate	Value in Currency Of Commitment	Percentage of	Value of Production
			a			b	c	d=b or d=b/c	a/d	
Quad										Quad
Canada	2000	CAD mill.	4,301	1999	CAD mill.	27,157		27,157	16%	Canada
EC	2000	EUR mill.	67,159	1999	EUR mill.	180,232		180,232	37%	EC
Japan	2000	JPY bill.	3,973	1999	JPY bill.	9,839		9,839	40%	Japan
USA	2000	USD mill.	19,103	1999	USD mill.	189,245		189,245	10%	USA
Other										Other
Argentina (ii)	2004	USD mill.	75	1999	USD mill.	15,000		15,000	1%	Argentina (i)
Australia	2000	AUD mill.	472	1999	AUD mill.	28,404		28,404	2%	Australia
Brazil	2004	USD mill.	912	1998	USD mill.	58,543		58,543	2%	Brazil
Bulgaria	2000	EUR mill.	520	1999	BGL bill.	4,207	1,821 BGL/EUR	2,311	23%	Bulgaria
Colombia	2004	USD '000	345	1999	USD mill.	15,000		15,000	2%	Colombia
Costa Rica	2004	USD mill.	16	1999	USD mill.	3,000		3,000	1%	Costa Rica
Croatia	2004	EUR mill	134	1999	EUR mill.	2,500	7.582 HRK/EUR	2,500	5%	Croatia
Cyprus	2004	CYP mill.	51	1999	CYP mill.	357		357	14%	Cyprus
Czech Republic	2000	CZK mill.	13,611	1999	CZK mill.	119,000		119,000	11%	Czech Rep.
Hungary	2000	HUF mill.	34	1999	HUF mill.	979,000		979,000	0%	Hungary
Iceland	2000	SDR mill.	130	1999	ISK mill.	11,890	53.26 ISK/SDR	223	58%	Iceland
Israel	2004	USD mill.	569	1998	USD mill.	3,533		3,533	16%	Israel
Jordan	2006	JOD '000	1,334	1999	JOD '000	600,000		600,000	0%	Jordan
Korea	2004	KRW bill.	1,490	1999	KRW bill.	29,639		29,639	5%	Korea
Lithuania	2005	USD mill.	95	1999	LIT mill.	6,305	4.00 LIT/USD	1,576	6%	Lithuania
Mexico (ii)	2004	MXN mill.	25,161	1999	MXN mill.	71,536		71,536	35%	Mexico (i)
Morocco	2004	MAD mill.	685	1999	MAD mill.	40,000		40,000	2%	Morocco
New Zealand	2000	NZD mill.	288	1999	NZD mill.	10,222		10,222	3%	New Zealand
Norway	2000	NOK mill.	11,449	1999	NOK mill.	18,700		18,700	61%	Norway
Papua N. Guinea	2004	USD mill.	34			n.a.		n.a.	n.a.	Papua N. G.
Poland	2000	USD mill.	3,329	1999	PLN mill.	49,937	3.964 PLN/USD	12,596	26%	Poland
Slovak Republic	2000	SKK mill.	10,140	1999	SKK mill.	55,828		55,828	18%	Slovak Rep.
Slovenia	2000	EUR mill.	62	1999	SIT mill.	127,767	193.7 SIT/EUR	660	9%	Slovenia
South Africa	2000	ZAR mill.	2,015	1998	ZAR mill.	42,702		42,702	5%	South Africa
Switzerland	2000	CHF mill.	4,257	1999	CHF mill.	7,139		7,139	60%	Switzerland
Thailand	2004	THB mill.	19,028	1999	THB mill.	500,000		500,000	4%	Thailand
Tunisia	2004	TND mill.	59	1999	TND mill.	2,400		2,400	2%	Tunisia
Venezuela	2004	USD mill.	1,131	1999	USD mill.	9,000		9,000	13%	Venezuela

(i)   <u>Currency abbreviations</u>: ISO 4217.

(ii) <u>Currency units</u>: Argentina: millions of U.S. dollars of January 1992 (1992 USD); Mexico: millions of 1991 Mexican new pesos (1991 MXN).

(iii) <u>Source</u>:   Part IV, Section I of Members' schedules. Argentina: Rectifications and Modifications of the Uruguay Round Schedules, G/MA/TAR/RS/52, 14 August 1998. EC-15: Rectification and Modification of Schedule CXL – European Communities, G/L/65/Rev.1/Add.3, 23 November 1998. Latvia is not listed since its final bound commitment, after 2002, is zero.

(iv) <u>Source</u>:

Canada	Agricultural Policies in OECD Countries – Monitoring and Evaluation 2000, OECD, Paris, 2000.
EC	Agricultural Policies in OECD Countries – Monitoring and Evaluation 2000, OECD, Paris, 2000.
Japan	Agricultural Policies in OECD Countries – Monitoring and Evaluation 2000, OECD, Paris, 2000.
USA	Agricultural Policies in OECD Countries – Monitoring and Evaluation 2000, OECD, Paris, 2000.
Argentina	Estimate, subject to confirmation.
Australia	Agricultural Policies in OECD Countries – Monitoring and Evaluation 2000, OECD, Paris, 2000.
Brazil	National Accounts from IBGE.
Bulgaria	Review of Agricultural Policies – Bulgaria, OECD, 2000, Annex Table V.1.1 (Exchange rate: Annex Table V.2.1)
Colombia	Estimate, subject to confirmation.
Costa Rica	Estimate, subject to confirmation.
Croatia	Estimate, subject to confirmation.
Cyprus	Republic of Cyprus, Statistical Service (http://www.pio.gov.cy/dsr/key_figures/agriculture/index.htm)
Czech Rep.	Agricultural Policies in OECD Countries – Monitoring and Evaluation 2000, OECD, Paris, 2000.
Hungary	Agricultural Policies in OECD Countries – Monitoring and Evaluation 2000, OECD, Paris, 2000.
Iceland	Agricultural Policies in OECD Countries – Monitoring and Evaluation 2000, OECD, Paris, 2000.
Israel	WTO (World Trade Organization) 2000, "Agricultural Production Values", G/AG/NG/S/15, 19 September, Geneva.
Jordan	Estimate, subject to confirmation.
Korea	Agricultural Policies in OECD Countries – Monitoring and Evaluation 2000, OECD, Paris, 2000.
Lithuania	Agricultural Policies in Emerging and Transition Economies: OECD, Database 1990/1999, OECD, Paris 2000.
Mexico	Agricultural Policies in OECD Countries – Monitoring and Evaluation 2000, OECD, Paris, 2000.
Morocco	Estimate, subject to confirmation.
New Zealand	Agricultural Policies in OECD Countries – Monitoring and Evaluation 2000, OECD, Paris, 2000.
Norway	Agricultural Policies in OECD Countries – Monitoring and Evaluation 2000, OECD, Paris, 2000.
Papua N. Guinea	n.a.
Poland	Agricultural Policies in OECD Countries – Monitoring and Evaluation 2000, OECD, Paris, 2000.
Slovak Rep.	Agricultural Policies in Emerging and Transition Economies: OECD, Database 1990/1999, OECD, Paris 2000.
Slovenia	Review of Agricultural Policies – Slovenia, OECD, 2001, Table IV.1.1 (Exchange rate: Annex Table IV.2.1)
South Africa	WTO (World Trade Organization) 2000, "Agricultural Production Values", G/AG/NG/S/15, 19 September, Geneva.
Switzerland	Agricultural Policies in OECD Countries – Monitoring and Evaluation 2000, OECD, Paris, 2000.
Thailand	Estimate, subject to confirmation.
Tunisia	Estimate, subject to confirmation.
Venezuela	Estimate, subject to confirmation.

present analysis. OECD PSE calculations are drawn upon here only for value of production, not for estimates of support. The differences between OECD PSE estimates and AMS measures of support are discussed in, e.g., OECD 2001 and Roberts et al. 2001. Moreover, the present analysis uses commitment amounts, not actual amounts of support. It is interesting, however, to note that the WTO members with the highest Total AMS commitments in relation to value of production are the same as the OECD members with the highest percentage PSE (Iceland, Norway, Switzerland). Likewise, the lowest-commitment members include also the OECD members with the lowest percentage PSE (Australia, New Zealand). The rankings of Canada, Mexico, and the United States are different in the two measurement series, however, as is Korea=s.

For some other members, estimates of value of production were also obtained from OECD data underlying Producer Support Estimates. For other members still, national sources were used. Again, the difference between such estimates and what these members might have measured for WTO purposes is expected to be inconsequential for the analysis.

Several members have final Total AMS commitments in a currency other than the national currency. This is the case for Brazil, Bulgaria, Colombia, Costa Rica, Croatia, Iceland, Israel, Lithuania, Papua New Guinea, Poland, Slovenia, and Venezuela. Mexico=s Total AMS commitment is in 1991 Mexican new pesos and Argentina=s in 1992 U.S. dollars. Members= value of production would usually be estimated in national currency and would therefore need to be converted to the currency of the Total AMS commitment. However, for a few members the value of production is also available from WTO sources in the same currency as the commitment (Brazil, Bulgaria, Israel), eliminating the need to convert. For many of the developing country members with a Total AMS commitment, the commitment amounts to only a small fraction, such as less than 5 percent, of value of production. This is the case for, e.g., Argentina, Brazil, and Colombia. For several other developing countries, however, the Total AMS commitment amounts to a considerable portion of value of production. For example, Mexico has Total AMS commitments amounting to about one third of value of production.

The categorization of members and the analysis of Total AMS in relation to value of production rely on a number of judgments. The values of production available from notifications or other sources refer to an earlier year than the years 2000 or 2004 when final bound commitments are reached. However, value of production changes relatively little from year to year for most members and, if related to world price changes, such changes apply to all members. A member's value of production for 1999 or earlier years

could be extrapolated to 2000 or 2004 by some judgement factor, such as an increase by 10 percent, that would account for expected changes in production quantities and nominal prices. However, even an increase in value of production by an *ad hoc* factor as large as 10 percent would generate only a 9 percent reduction in the ratio of Total AMS over value of production. A 10 percent ratio would become 9 percent, and a 50 percent ratio would become 45 percent. The overall picture of which members have relatively high Total AMS commitments in relation to value of production is therefore not significantly affected by these data difficulties.

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