Opening
AGRICULTURAL MARKETS
through tariff cuts in the WTO

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foreword

The current WTO agricultural negotiations are reaching a critical stage. Members are striving to agree by the end of March 2003, on how policies are to be reformed. Such reforms will only be successful if markets are made much more open. Tariff reductions will be central to the outcome.

Commitments on tariffs in the WTO consist of undertakings by members that the tariffs that they actually apply will not exceed 'bound' maximum levels. In many cases, the bound tariffs greatly exceed both the applied tariffs and the levels of actual protection. The whole of the difference between the bound tariffs and actual levels of protection is termed 'water in the tariff'. This water must be eliminated before tariff cuts will make markets genuinely more open. Consequently large phantom 'reductions' can be required for many bound tariffs before additional trade is generated.

In this paper, estimates are made of the extent of water in bound tariffs for a range of agricultural commodities and major importing countries, and the effectiveness of differing approaches to reducing bound tariffs is appraised. The objective is to assist negotiators and those with a stake in more open agricultural markets to better appreciate the effects of WTO tariff reforms.

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summary

Countries' tariff commitments in the WTO are made on bound or maximum tariffs. In many instances the bound rates are above both the tariff rates that importing countries actually apply and the effective levels of protection for agricultural products in those countries. The extent to which the bound rate exceeds the applied rate or the level of protection, whichever is the greater, is termed 'water in the tariff'.

Unless reductions in bound tariffs exceed the water in the tariff, they will not increase imports at all. Only if the reductions in bound tariffs exceed the water in the tariff, will there be conditions under which imports can increase as a result of the cuts.

The results of the analysis in this paper show that generally, levels of 'water' in bound tariffs are high, and large cuts in the tariffs are required for most commodities in most countries before additional imports would result. Consequently, in general it will require large tariff cuts to expand actual imports. However, there are wide differences between countries and commodities in levels of water in the tariff. Some commodities, notably butter, cheese and beef, have relatively low amounts of water in tariffs for some important importing countries. Consequently, the prospects of expanding trade for these items through tariff cuts appear to be greater than for other commodities.

introduction

Currently WTO negotiations are taking place in Geneva to achieve greater economic benefits from trade in agricultural products. In this paper, market access issues are discussed, especially the extent of cuts in tariffs that would be necessary to make agricultural markets more open.

Tariffs raise the cost of imported products, thereby limiting import competition and enabling domestic producers of comparable or substitutable products to charge higher prices than if they were more fully exposed to such competition.

Negotiations on market access address two main goals:

- To reduce general tariff rates;
- To expand access commitments, including minimum levels of market access into importing countries, and to assure current access levels for particular products via the use of tariff quotas. Where these tariff quotas apply, imports up to specified quantities enter at within quota tariff rates that are lower, often substantially, than the general or beyond quota tariffs.

This paper deals only with reducing the general tariff rates. Where tariff quotas apply, only the general tariffs are considered — those tariffs on imports beyond the tariff quota quantities.

The basic idea of agreeing to reduce tariffs is simple. WTO member governments decide to reduce tariffs by agreed percentages or amounts, or according to a particular reduction formula. However, there are characteristics of WTO commitments on tariffs and some technical issues that require close consideration if more open markets are to be achieved.

In particular, commitments in the WTO have so far been made only on bound or maximum tariffs. As explained below, because these maxima often greatly exceed applied rates or effective levels of protection, substantial cuts to bound rates would be required before there is any resultant expansion in real market access.

Two key considerations that will affect the success of market access negotiations are explored in this paper:

- The first is ‘water’, or unused capacity in agricultural tariffs that are bound in the WTO. Estimates of water in agricultural tariffs are provided, along with a determination of the

kinds of cuts that will be necessary to eliminate that unused capacity so that markets in importing countries experience actual increases in competition from imports.

- The second consideration is the issue of reducing high tariffs by more than lower tariffs through use of a progressive cut formula. Currently a particular progressive cut formula called the Swiss formula is being considered in the negotiations. At the same time, some members are advocating the further application of the approach to tariff cuts taken in the present WTO Agreement on Agriculture. This 'Uruguay Round' approach is for an average percentage cut of an agreed level across all bound tariffs, combined with minimum percentage reductions for individual tariff lines.

In this paper, estimates of water in agricultural tariffs are provided and comparisons are made of the effects of the Swiss formula and Uruguay Round approaches on making markets more open.

key considerations

Bound versus applied and effective tariffs – 'water' in the tariff

When countries make commitments on tariffs in the WTO, each agrees that the tariffs they apply on particular products should not exceed a maximum level, called a 'bound' tariff. It is important to appreciate that the commitments on these bound or maximum tariffs may bear no relationship to the tariffs actually applied. Members are free either to increase or reduce their actual tariffs, provided those applied tariffs do not exceed the bound levels.

At present, bound tariffs exceed actual applied tariffs for most agricultural commodities in most importing countries. However, there are wide variations in the extent of the disparity between bound and applied tariffs for different commodities in different countries. For dairy products, for example, bound and applied rates closely correspond in the European Union, United States and Canada, but there are disparities in Japan and large disparities in many developing countries.

Reductions in bound tariffs to levels below the applied tariffs are necessary to improve market access. However, such reductions will only be sufficient in some circumstances. If imports already occur at the applied tariff, cutting the bound tariff to below the applied tariff would advance trade. Under such conditions, the gap between bound and applied tariffs is termed 'water in the tariff'.

In other cases, reducing bound tariffs to marginally below the applied tariff levels would be insufficient to result in additional imports. This can occur when applied general tariffs are prohibitively high. In such cases, the 'water in the tariff' is the gap between the tariff-inclusive price of the product at the bound tariff rate and the internal price.

Agreed cuts in bound tariffs must be larger than the 'water' before they can have any effect at all in opening markets more. This is shown in box 1. The important consideration for WTO agricultural tariff negotiations arising from water in the tariffs is that bound tariff rates can often be reduced substantially without reducing actual levels of tariff protection. Both the extent of the 'water' and the degree of agreed tariff reductions are therefore critical in determining whether market access is actually improved.

Reducing high tariffs by more than low tariffs

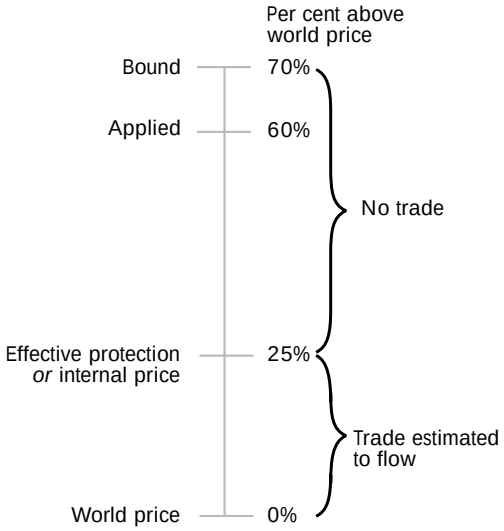
Instead of using straight percentage tariff cuts as occurred for agriculture in the Uruguay Round, disparities in protection can be reduced if high tariffs are reduced by more than lower

Box 1: Illustration of effective protection

The following diagram illustrates how bound and applied tariffs and effective protection interact. The term 'effective protection' as it is used here should not be confused with the 'effective rate of protection' that has a different meaning in economic literature. In this example, the bound tariff is 70 per cent and the applied tariff is 60 per cent. In this case, a 10 percentage point reduction in bound tariff is required to bring it in line with the applied tariff.

However, in this example it is assumed that the applied tariff is prohibitive, and that internal supply and demand conditions have led to a domestic price that is 25 per cent above the world price. The effective protection is the amount the prevailing internal price exceeds the 'world price' before tariff, or 25 per cent in this example. Thus, the bound tariff would need to be reduced to a new level that is less than 25 per cent before exporters from other countries could sell profitably in the market. A minimum cut to the bound tariff of 45 percentage points would eliminate the 'water' and bring the applied rate down to the effective level of protection. A cut of less than 45 percentage points would be unlikely to increase imports into this market. (Note: a 45 percentage point reduction from a base tariff of 70 per cent is equivalent to a 64 per cent cut in the tariff.)

Illustration of effective protection



tariffs. High tariffs, which are sometimes called 'tariff peaks', raise prices to consumers by more than lower tariffs and therefore depress trade more. Also, there has been a propensity for countries to protect some domestic processing sectors by charging progressively higher tariffs as products move along the processing chain — a phenomenon known as 'tariff escalation'. As with tariff peaks, tariff escalation can result in substantial economic costs and trade distortions because the high tariffs divert resources into otherwise less profitable activities and curtail consumption levels. Generally, the higher the tariffs or protection, and the greater the tariff peaks, the larger will be the economic distortions and costs.

To reduce these costs, it is desirable to seek larger reductions in high tariffs than in low tariffs. These are called 'progressive tariff cuts'. This can be done using a formula that systematically reduces larger initial tariffs by more than lower initial tariffs, or by applying higher percentage cuts to tariffs within high ranges than for tariffs in lower ranges.

Progressive tariff cuts and the Swiss formula

One such progressive tariff cut formula is known as the 'Swiss formula'. This formula was applied to industrial products in the Tokyo Round trade negotiations in the late 1970s (Francois and Martin 2002). Its characteristics are described in box 2. The Swiss formula is

Box 2: The Swiss formula

The Swiss formula is:

$$T_1 = a.T_0/(a+T_0)$$

where:

- '*a*' is a positive number that, because of the properties of the formula, becomes the maximum allowable tariff rate;
- T_1 is the final tariff rate after applying the formula;
- and T_0 is the initial tariff rate to which the formula is to be applied.

The most important properties of this formula are that it results in larger cuts for high tariffs than for low tariffs, and, when a number for '*a*' is nominated, the final tariff cannot exceed that nominated number, no matter how large the initial tariff was.

To illustrate the application of the formula it is assumed that there are three countries with initial tariffs for a commodity of 40 per cent, 150 per cent and 250 per cent respectively. They decide to consider reducing these tariffs using the Swiss formula and wish to see what the final outcome will be if they nominate differing values for '*a*' of say 25, which is the level nominated in the US proposal to the present negotiations, 100 and 150. The results of applying the formula would be:

Application of the Swiss formula to reduce tariffs

Initial tariff	**Final tariff**		
	***a* = 25%**	***a* = 100%**	***a* = 150%**
Country A: 40 per cent	15.4 **a**	28.6	31.6
Country B: 150 per cent	21.4	60	75
Country C: 250 per cent	22.7	71.4	93.8

a This number is calculated using the formula as follows:
The final tariff = 25*40/(25+40) = 1000/65 = 15.38. The formula is applied in the same way for the other examples in the table.

The progressiveness of the formula can be seen from these results. For example, with an assumed '*a*' value of 150, the tariff cut to country A with an initial tariff of 40 per cent would be 21 per cent. The cut to country C with the initial tariff of 250 per cent would be 62.5 per cent.

being considered in the present WTO negotiations on agriculture. In particular it has been advanced in the US (FASonline 2002a, b) and Cairns Group proposals for tariff cuts.

Bound tariff cuts needed to induce more trade

To indicate the extent of water in tariffs, bound and applied tariffs and effective protection were examined for a range of agricultural commodities and import markets (major present or prospective). The bound rates used in this analysis for developed countries are as at 2001 and the applied rates used are mainly as at 2000 or 2001. For developing countries, the bound tariffs used are their final bound levels as per their schedules for the WTO Agreement on Agriculture, for 2004. The average extent by which internal market prices exceed world

market levels, that is the level of effective protection, was ascertained for the period 1996 to 2001.

For a particular country, the amount of water in the tariff will vary from year to year. The exact level for a particular year depends on fluctuations in the world price for that year and on the application of non tariff based forms of support. When estimating the amount of water in the tariff, world market prices over a number of years were used, thereby minimising the effect of extreme fluctuations. While cuts to bound tariffs that exceed the estimated average water in the tariff would result in increased imports on average over time, they would not necessarily increase imports in all years.

Country and commodity coverage

A range of products including wheat, coarse grains, rice, sugar, beef, cheese, butter, milk powders, palm oil, soy oil and soybeans were analysed. The countries considered were those that have been large importers or are prospective large importers (box 3).

For each commodity for each country analysed, the most representative tariff was chosen. For example, most countries have three separate tariff lines for wheat — wheat for sowing, durum wheat and other wheat. Except where the dominant wheat imports were durum wheat, the tariff for 'other' wheat was used. For most products selected, the choice of tariff line

Box 3: Major importing countries used in analysis of water in the tariff, by commodity

Commodity	Importing countries / regions
Wheat	Brazil, Chile, Egypt, European Union, Indonesia, Japan, Korea, Malaysia, Mexico, Morocco, Peru, Philippines, Thailand, Venezuela
Coarse grains	Colombia, Ecuador, Egypt, European Union, Indonesia, Japan, Korea, Mexico, Morocco, Philippines, Thailand
Rice	Brazil, European Union, Indonesia, Japan, Nigeria
Sugar	European Union, Indonesia, Japan, Korea, Malaysia, United States
Beef	Canada, European Union, Japan, Korea, Norway, Switzerland, United States
Butter	Egypt, European Union, Japan, Korea, Morocco, Switzerland, United States
Cheese	Brazil, Canada, European Union, Indonesia, Japan, Korea, Mexico, Philippines, United States
Milk powders	Brazil, Indonesia, Japan, Mexico, Philippines, Thailand
Palm oil	Bangladesh, European Union, India, Japan, Korea, Nigeria
Soybean oil	Bangladesh, Brazil, Colombia, Egypt, European Union, Indonesia, Korea, Malaysia, Mexico, Morocco, Nigeria, Pakistan, Philippines, South Africa, Thailand, Turkey, Venezuela
Soybeans	Bangladesh, Brazil, Colombia, Egypt, European Union, India, Indonesia, Israel, Japan, Korea, Mexico, Nigeria, Philippines, Thailand, Turkey.

was similar to the situation for wheat. However, for products such as beef and cheese, which are highly differentiated by cut or type, the tariff for the largest import item by value was chosen. In all there were 106 observations. Of these, six had bound tariffs of zero while nineteen had applied tariffs of zero.

Where there was a need to estimate effective levels of price support to determine the amount of water in the tariff, import parity levels of world market prices were used on a cif (cost, insurance, freight) basis, along with internal market prices. Where the products involved were capable of a high degree of product differentiation, the dominant traded item was identified and relevant price and tariff data used. If prices for that dominant item were not available, those for the most similar item for which data were available were used in the calculations.

findings

Levels of water in bound tariffs

One of the main findings from this exercise is that, on average, there is a substantial amount of water in bound tariffs in major importing countries across all ranges of present bound tariff levels. In table 1, the average percentage amount of water for groups of initial tariffs within different ranges is shown. For example, the average amount of water in bound tariffs that ranged between 15 and 30 per cent was calculated to be 50 per cent. That there are very high average levels of water in the tariff for all ranges; levels are especially high for initial bound tariffs between 150 and 300 per cent.

Such is the extent of water in tariffs that further cuts in bound rates of similar magnitudes to those negotiated in the Uruguay Round would have only a minor impact, on average, in further opening markets. Those cuts for developed countries were an average of 36 per cent for agricultural products as a whole, with a minimum cut of 15 per cent for individual items. For developing countries, the cuts were two thirds of these amounts.

1 **Water in agricultural tariffs**

Bound tariff range	Average water in the tariff
	%
0 – 15 per cent	37
15 – 30 per cent	50
30 – 60 per cent	48
60 – 150 per cent	48
150 – 300 per cent	75
300 per cent +	54

Clearly, greater reductions to bound tariffs will be needed if the negotiations are to open agricultural markets up much more.

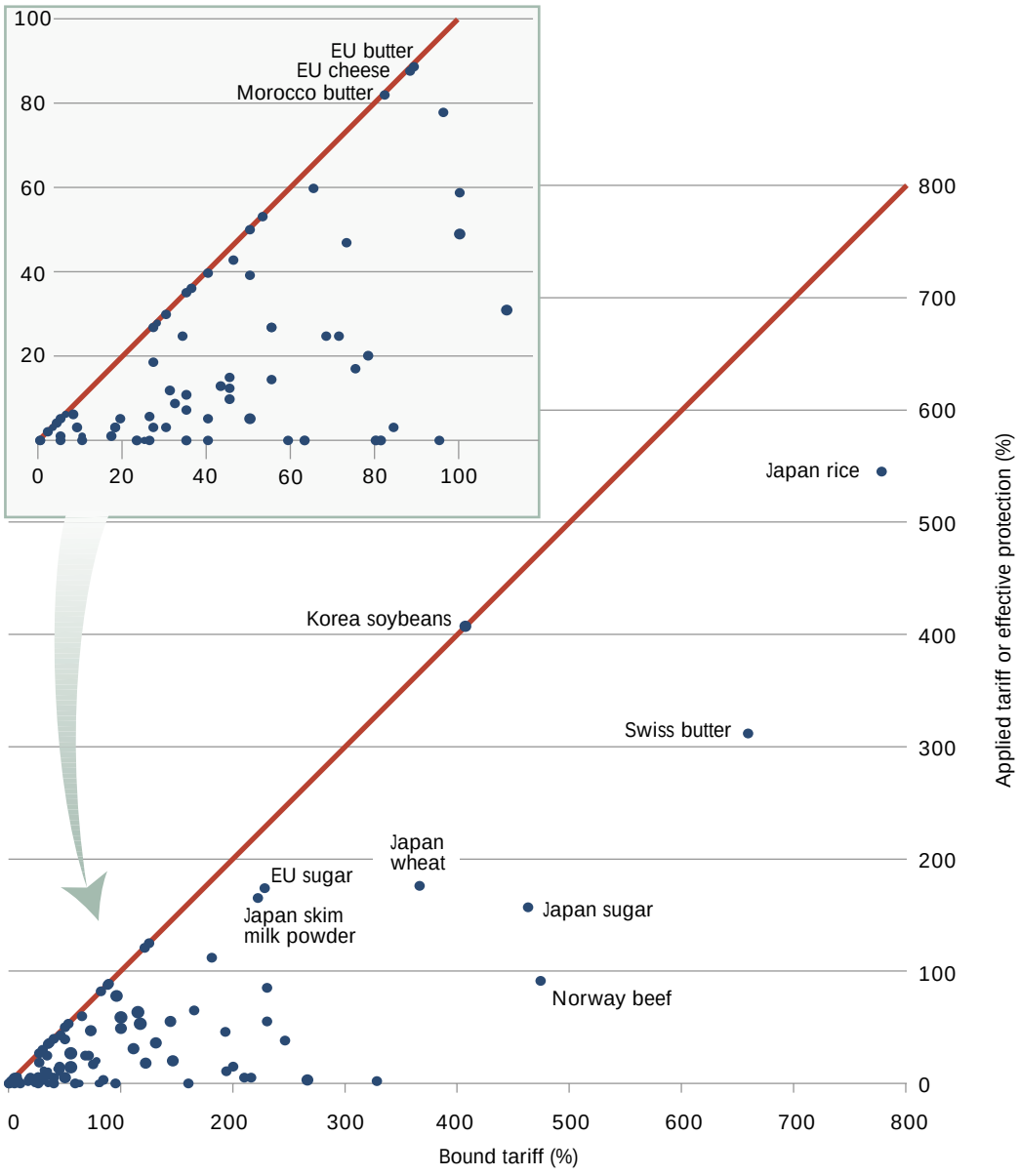
Figure A is designed to show the extent of water in tariffs for countries that are major importers or potential importers of the agricultural products examined. In this figure, bound tariffs, shown on the horizontal axis, are plotted against the applied tariff or the effective protection (if below the applied tariff), on the vertical axis.

As discussed earlier, the bound tariff represents a maximum permitted tariff, so the applied tariff will either equal the bound tariff or be below it. This means that all observations for applied tariffs or effective protection will either be on the diagonal line shown in figure A or below it. The extent to which individual observations fall below the diagonal line indicates the amount of water in the tariff.

In the figure a wide dispersion in levels of water in agricultural tariffs can be seen. For the observations that are on the diagonal line and that are above zero (19 of the 106 observations),

any reduction in bound tariffs would result in comparable reductions in actual levels of effective protection arising from tariffs and make the markets more open to import competition. However, there are large numbers of tariffs that fall greatly below the diagonal line and for which very large reductions would be required in bound tariffs before the markets actually became more open to imports. For example, the bound tariff for butter in Switzerland would need to be reduced by more than 50 per cent before additional imports could occur.

A **Water in the identified tariff**



Effects of special safeguards

In this study, bound tariffs alone are considered in relation to effective protection to determine the level of water in the tariff. However, the effectiveness of cuts to bound tariffs in advancing trade can also be impeded by a special safeguard mechanism that is incorporated into the WTO Agreement on Agriculture for specified products by some members.

The idea behind the special safeguards is that where a country reserves the right to use them for particular products in its Uruguay Round schedule, it is permitted to impose temporarily increased levels of tariffs when there are surges in imports or sharp reductions in import prices. The price trigger for these special safeguards is defined as the average cif import unit value for the base period, 1986–88. In some instances, imports were strictly limited at that time by quotas and were priced at greatly above world market levels. Such was the case for EU sugar, for example, where the high trigger price has effectively resulted in the safeguard being permanently capable of enforcement. This acts to prevent any imports outside those that are now permitted within tariff quotas or other preferential arrangements, irrespective of whether there were reductions in the bound tariff rate. Under such extreme conditions, even the elimination of the bound tariff rate would have no impact on trade. In less extreme circumstances, the effects of bound tariff reductions could still be markedly impaired by the operation of the special agricultural safeguard.

The analyses in this paper do not take account of the additional effects from the use of special safeguards.

Incorporating the Swiss formula for progressive cuts

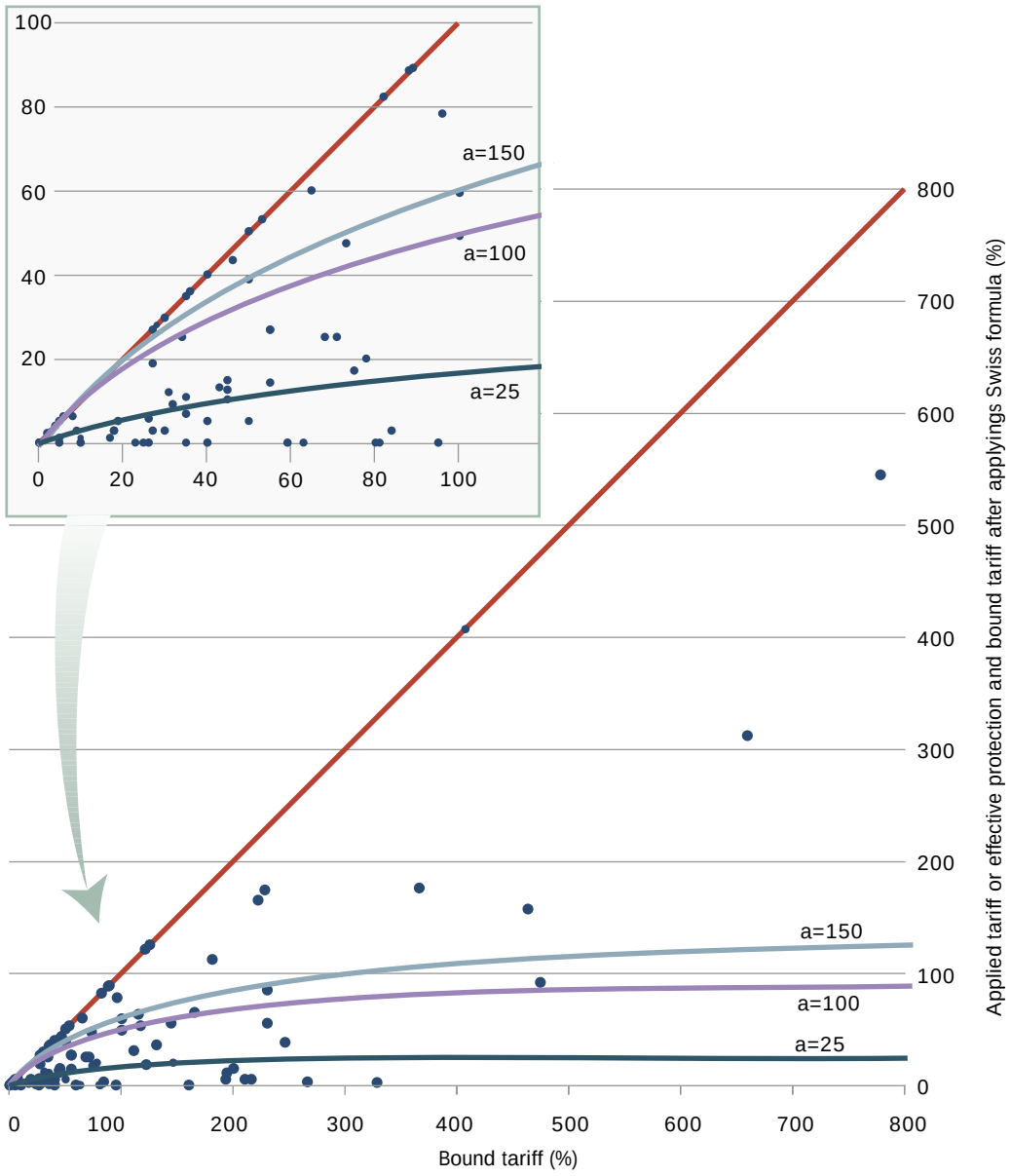
The next step was to incorporate Swiss formula cuts (box 2) into the exercise. Note that the formula results in progressively larger cuts as initial tariffs rise and that the allowable tariff after the implementation of the formula can not exceed the designated value of '*a*' (the maximum allowable tariff rate). The Swiss formula is incorporated into the analysis by calculating the final bound tariffs that would arise through applying the formula to initial bound tariff levels, assuming various settings for the value of '*a*'. These are then plotted on figure B for all possible values from initial bound tariffs between zero and 800 per cent.

An example of the application of the Swiss formula to bound tariffs would be for an initial bound tariff of 120 per cent and a value for '*a*' of 100. After application of the formula, that tariff would be reduced to 54.5 per cent (this is calculated as follows: value after cut = (100*120)/(100+120) = 54.5 per cent). Applying the same formula with the same value of 'a' to a very high initial bound tariff of 500 per cent would give a final value of 80.6 per cent (that is, (100*500)/(100+500) = 80.6 per cent). If the values for bound tariffs after application of the formula with an 'a' value of 100 are plotted, they will give new tariff levels represented by a curve that approaches 100 as initial tariff levels increase, but which will never quite reach that level (see the middle curved line in figure B).

For illustrative purposes, the levels chosen for '*a*' in figure B are 25, 100 and 150. The value of 25 is included because the Cairns Group has proposed this value as the maximum value for developed countries after cuts using the formula. Also, the United States has proposed that the 'a' value should be 25 for all members.

Points above each of the Swiss formula lines in figure B represent commodity markets where the required cut to bound tariffs would force the applied tariffs to be cut, along with internal prices. Conversely, points that are below each line represent commodity markets where the designated cut to bound tariffs will have no impact on imports or internal prices, because of the water in these tariffs. In general, the more points there are above the Swiss formula line, the more successful will be the formula in expanding market access. Conversely, the more points that fall below the Swiss formula line, the less successful the formula cuts would be.

B **Water in the identified tariff: effects of various Swiss formula cuts**



The effectiveness of reducing tariff protection by using various bound tariff reduction methods is shown in table 2. This is done for the 106 observations made, by indicating:

- the numbers of identified tariffs that would experience actual cuts to effective protection;
- the unweighted average extent of actual cuts in 'effective' protection over the entire 106 observations;
- the number of observations where the 'cuts' would have no impact at all; and
- the average extent of actual cuts in effective protection for the items for which protection is actually reduced.

The first two assumed methods (reducing bound tariffs by 20 per cent and 36 per cent respectively) were included to understand the effect of further cuts similar to those under the Uruguay Round. In this context, it is relevant that in mid December 2002, the European Union, in its draft proposal to present negotiations, advocated reductions averaging 36 per cent, with minimum cuts of 15 per cent for any tariff line. The other three methods shown are for Swiss formula reductions with respective values for '*a*' of 150, 100, and 25.

Observations that can be made from table 2 help throw light on the likely effectiveness of cuts in the negotiations. Some are:

- There is a lot of water between the bound and the applied or effective tariffs for most major agricultural commodities in major importing countries. Consequently, reductions in 'bound' tariffs will greatly overstate the extent of average reductions in actual tariffs and in tariff-induced protection.
- Agreed cuts of the same nature and extent as those under the Uruguay Round would do little on average to open agricultural markets. Most members have sufficient water in their tariffs for them to avoid cutting most of their tariffs at all, while the average tariff cuts would be small. Nevertheless, there is a subset of observations where there is little water in the tariffs. For this group, the actual tariff reductions would be appreciable.

2 Effects of various assumed levels and methods of reduction to bound tariffs for the 106 observations made

Means of reducing bound tariffs	Number of identified tariffs with reduced effective protection	Average cut in effective protection **a**	Number of identified tariffs without reduced effective protection	Average cut for items reduced **b**
	no.	%	no.	%
Bound tariffs reduced by 20 per cent	24	4	82	19
Bound tariffs reduced by 36 per cent	32	8	74	29
Swiss formula: *a* = 150	31	8	75	27
Swiss formula: *a* = 100	37	11	69	32
Swiss formula: *a* = 25	53	29	53	57

a Unweighted average for the total number of observations (106). **b** Unweighted average for the number of items that are actually reduced.

- The average percentage reduction in effective protection in all of the scenarios considered, except that with a Swiss formula '*a*' value of 25, would be small. Tariffs on a large number of traded items would be unaffected. This is a reflection of the high levels of water in many of the present tariffs.
- Even with the '*a*' value of 25 for the Swiss formula, the average percentage reduction in tariffs would be relatively modest — at 29 per cent. This is despite the fact that some of the very high tariff items, such as for Japanese rice and wheat, Swiss butter and EU sugar, would experience very large reductions. For many of the other items, reductions would be minor.
- For all of the scenarios considered, there would be as many or more items with no cuts at all in effective protection than items required to undergo cuts. One of the reasons for this is that many tariff items have high bound rates but their applied rates have already been reduced to low levels.
- The outcomes for Swiss formula scenarios with '*a*' values of 100 or 150 do not differ much on average from a straight cut of 36 per cent in all bound tariffs. However, the distribution of the cuts would differ markedly. The Swiss formula applications would cut very high initial tariffs by more than the straight 36 per cent cut and the very low initial tariffs by less. This would result in a more efficient outcome with greater economic benefits.
- The estimated modest reduction in average actual tariff protection of 8 per cent from a cut of 36 per cent in all tariffs would be well above the outcome from applying the EU's proposal of an average of 36 per cent with minimum cuts of 15 per cent for each tariff line. With the application of the present WTO Agreement on Agriculture, the experience has been that for 'sensitive items' for countries with high protection, the agreed tariff reductions were around the 15 per cent minimum.
- For all scenarios, except the one with a Swiss formula '*a*' value of 25, average reductions in applied tariffs would be modest and there would be many applied tariffs that would not be affected at all by the cuts to bound rates. However, there would be appreciable reductions in effective protection levels in all scenarios for the items where the cuts bite.

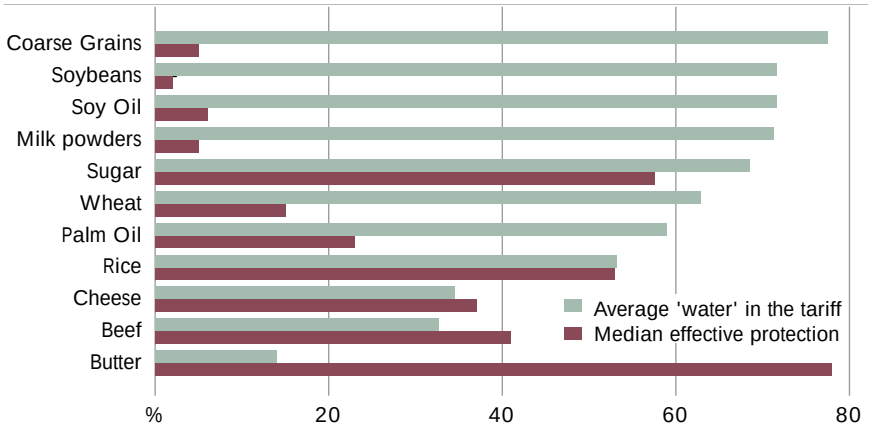
For which commodities are cuts most likely to bite?

In the previous section it was indicated that although large cuts in bound rates will achieve only modest average cuts, some tariffs would be markedly reduced — that is, those where there was the least water in the tariff. In this section, the tariff protection profile is examined for the commodities considered in the analysis to ascertain those that would be most affected by cuts to bound tariff rates.

This is done by comparing the average amount of water in the tariff with the median level (the level of the middle observation) of effective protection for each commodity. That comparison is shown in figure C.

From figure C, several important characteristics of protection for the various commodities are evident:

C Water in the tariff and effective protection, selected commodities



- For coarse grains, soybeans, soy oil, milk powders and to a lesser extent also wheat and palm oil, the amount of water in the tariff is very large relative to effective protection levels. This means that it would require very large reductions indeed in bound rates to increase actual market access appreciably.
- For the commodities mentioned in the previous point, all but wheat and palm oil had very low median levels of effective tariffs, and wheat and palm oil have moderate median levels. This means that trade in these items is already relatively free. Threats to this openness could still arise if importers of those items were to decide to increase their applied tariffs within the ample levels to which they are currently 'entitled' under their tariff bindings.
- Sugar and rice have both high levels of water in their tariffs and high levels of effective tariffs. Large cuts in bound rates will be necessary before additional trade is induced. However, if such cuts can be agreed, the potential to make markets more open is great because of the scale of protection.
- Cheese and beef have both moderate levels of tariff protection and moderate levels of water in the tariff. Tariff cuts that bite and which could markedly increase market access could be more attainable for these than for the products mentioned in the above points. Some important markets for both commodities would only require small reductions in bound tariffs to allow additional trade to occur.
- The position of butter is unique for the commodities considered, with there being relatively low levels of water in the tariffs for most countries and very high tariff levels. Therefore smaller cuts in bound tariffs are required to eliminate water in the tariff than for the other commodities. At the same time, reductions in bound tariffs that go beyond the cuts required to eliminate the 'water' in existing tariffs are likely to exert substantial pressure on systems designed to protect producers in major protecting countries.

conclusions

There is a great deal of unused water in most current bound tariffs for agricultural commodities. Consequently, substantial reductions are required in most bound tariffs before they bring about any increases in trade.

Nevertheless, there are some commodities where the amount of water in present bound tariffs in some important markets is not so great, and actual protection levels in those markets are high. This applies to butter and, to a lesser extent, cheese and beef. In such markets, moderate reductions in bound tariffs could yield appreciable economic benefits.

Applying a progressive cut formula such as the Swiss formula will yield greater economic benefits than flat tariff cuts, such as applied under the Uruguay Round, even where the average cut in effective protection is similar. This is because the cuts would be more heavily concentrated in higher tariffs.

references

FASonline 2002a, *The US WTO Agriculture Proposal*, 30 July (www.fas.usda.gov/itp/wto/proposal.htm).

—— 2002b, *US Proposal for Global Agricultural Trade Reform: Market Access: The Swiss 25 Formula in Action*, 31 July (www.fas.usda.gov/itp/wto/marketaccess.htm).

Francois, J., and Martin, W. 2002, *A Formula for Success? Potential Approaches to Market Access Negotiations*, Erasmus University, Rotterdam.

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Coal and Allied Industries Limited

Dairy Research and Development Corporation

Department of Agriculture, Fisheries and Forestry – Australia

Department of Foreign Affairs and Trade

Department of Industry, Tourism and Resources

Environment Australia

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Fisheries Resources Research Fund

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