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MARKET ACCESS FOR NON-AGRICULTURAL PRODUCTS

A rational approach for setting base rates for unbound tariff lines

Communication from Mexico

Addendum

The following communication, dated 20 June 2005, is being circulated at the request of the Delegation of Mexico.

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1. Introduction

As indicated in document TN/MA/W50, we think that Members should solve the issue of the base rates to be utilized for unbound lines, separately from and prior to the agreement on the formula coefficients and flexibilities. The objective of this document is to contribute to the discussion of the treatment of '*unbound lines'*.

Our perception of the discussions so far is that the preferred approach is a "Mark up" approach to establish base rates, to be subsequently reduced through the application of the general tariff reduction formula.

This paper further elaborates on such approach. In doing so, it uses a flexible formula-based methodology to address the problem of establishing base rates for unbound tariffs.

Such formula approach (*Rational Formula*) provides an answer to the following question: Given that we know the initial applied tariff for a product *x*, how much should product *x*'s base rate be? The formula proposed here will answer this question for all products *x*, and will have the following characteristics:

(i) Base rates should be higher than the applied tariffs to address the concerns expressed by Members with low applied tariffs.

(ii) The goods with the higher applied tariffs should end up with equal or higher base rates.

(iii) The goods with the higher applied tariffs should have lower increases. This condition reflects the reality that high applied tariffs already have significant protection.

The elaboration of the Rational Formula focuses on defining the methodology to reach desired results through the establishment of base rates based on the applied tariffs in order to apply the general reduction formula.

We worked under the principle of binding all tariff lines and making them subject to the tariff reduction formula, while recognizing the need to address Members' concerns regarding the treatment of low unbound lines.

Simplicity is also a desirable element in the context of a multilateral negotiation, and therefore the advantages of having a more precise and flexible formula approach should be weighted against the cost in terms of additional parameters and a more complex mathematical expression.

2. *"The Rational" Formula*

This formula-based approach proposes the following rational expression for the difference between the base rate and applied tariffs for good *x*:

$$(1) \qquad t_1(x) - t_0(x) = \frac{\alpha}{t_0(x) + \beta}$$

Where: $t_1(x)$: the base rate tariff for good *x*'s

$t_0(x)$: the corresponding initial applied rate

α and β are positive constant parameters that can be specified in the course of the negotiation

This expression can also be interpreted as the "mark up" a Member requires for binding its tariff for good *x*.. This is a smooth function that satisfies all the properties stated before, as long as $\beta \geq \sqrt{\alpha}$ [1]. The general shape of the function is shown in Figure 1 for a benchmark example with α =100 and β =10. Figures 2, 3 and 4 illustrate the effects of changing the parameters[2]. By fixing the parameters α and β, it is possible to know the tariff increase for any level of initial applied tariff. It is also possible to select α and β to obtain any desired specification for the level and the slope of the curve. For example, increasing both parameters will lower the mark up for the goods with low applied tariffs while raising it for the goods with high applied tariffs (see Figure 4)

[1] When $\beta < \sqrt{\alpha}$, then the tariff after binding is not always an increasing function of the applied tariff levels, that is, condition (ii) is not satisfied. This problem arises especially for the goods over the low end of the tariff schedules, and can be remedied by forcing these goods with low applied tariffs to have the same constant base rate.

[2] An increase in the parameter α has two effects (i) raising the level of compensation (or tariff increase) for every initial applied tariff, and (ii) making the curve steeper, which means even higher compensation for the goods with relatively low initial applied tariffs. An increase in the parameter β has, in general the opposite effect: reducing all levels and making the curve less steep. Unlike α , however, the effect of β becomes insignificant for very high applied tariffs. Because of this difference, an increase in both parameters tends to reduce the slope of the curve while leaving its level unaffected, and has the effect of making the compensations lower for goods with low applied tariffs, and higher for goods with high applied tariffs (see Figure 4)

Figure 1
Increase in Base Rate
as a Function of Applied Tariff

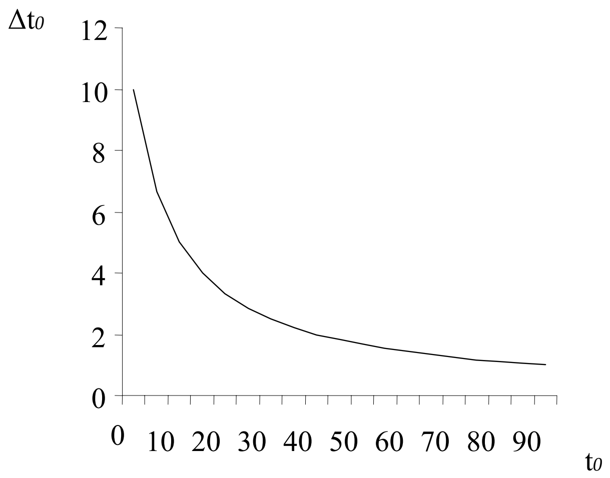


Figure 2
An increase in the parameter α

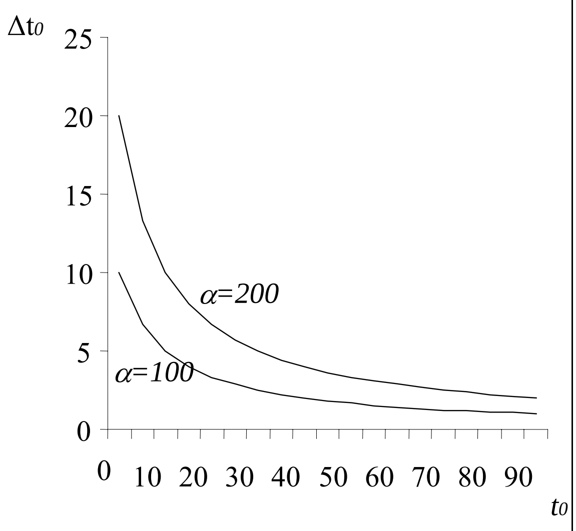


Figure 3
An increase in the parameter β

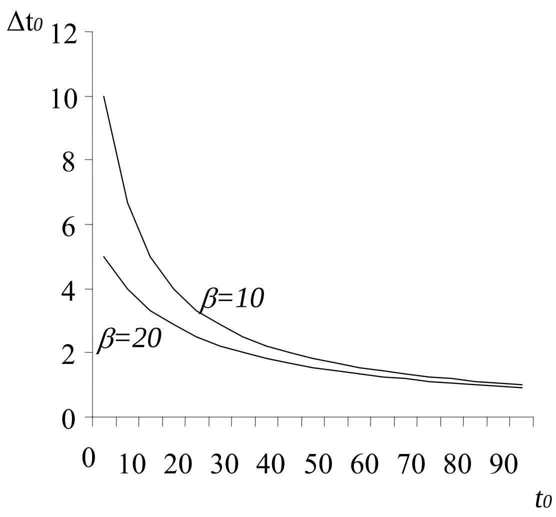
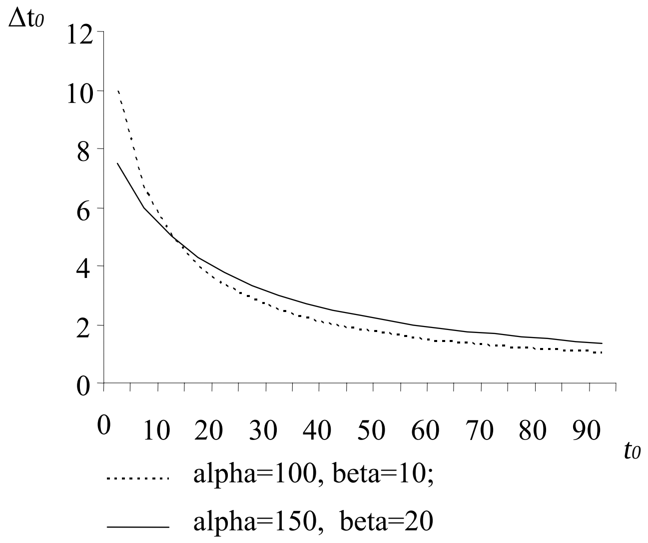


Figure 4
An increase in α and β



- **An example: deriving a full tariff schedule under the "Rational" Formula**

We will estimate equivalent base rates by applying the proposed rational formula. The general tariff reduction formula (to be agreed) would be subsequently applied.

In order to determine the parameters α and β, all we need to know is the base rates that we want to assign to a pair of goods. Suppose that we want a good x_0 with an applied tariff of zero to have a base rate of 15%, and we want all goods with applied tariffs above 60% to have a base rate that is close to the applied level that is $t_1(x_0) - t_0(x_0) = 15$ and $t_1(x_1) - t_0(x_1) = 5$, with $t_0(x_0)$=0 and $t_0(x_1)$=60. By plugging these values in equation (1), we obtain the following system of two equations and two parameters:

$$\begin{cases} t_1(x_0) = \dfrac{\alpha}{\beta} = 15 \\ t_1(x_1) - 60 = \dfrac{\alpha}{\beta + 60} = 5 \end{cases}, \text{ with a solution} \begin{cases} \alpha = 450 \\ \beta = 30 \end{cases}$$

The formula that solves this problem is: $t_1(x) - t_0(x) = \dfrac{450}{t_0(x) + 30}$ (2)

The resulted base rates of applying this formula to an example of tariff schedule are shown in Figure 5 and Table 1.

- A second example:

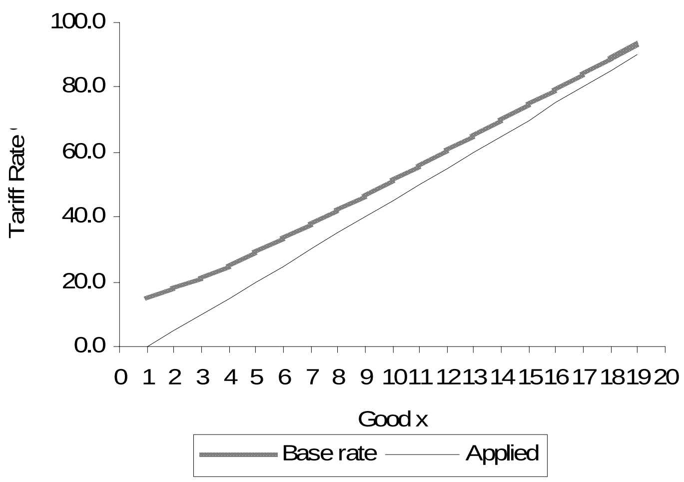
Now suppose that we want a good x_0 with an applied tariff of zero to have a base rate of 20%, and we want all goods with applied tariffs above 60% to have a base rate that is close to the applied level that is $t_1(x_0) - t_0(x_0) = 20$ and $t_1(x_1) - t_0(x_1) = 5$, with $t_0(x_0)$ =0 and $t_0(x_1)$ =60. By plugging these values in equation (1), we obtain the following system of two equations and two parameters:

$$\begin{cases} t_1(x_0) = \dfrac{\alpha}{\beta} = 20 \\ t_1(x_1) - 60 = \dfrac{\alpha}{\beta + 60} = 5 \end{cases}, \text{ with a solution} \begin{cases} \alpha = 400 \\ \beta = 20 \end{cases}$$

The formula that solves this problem is: $t_1(x) - t_0(x) = \dfrac{400}{t_0(x) + 20}$ (3)

The resulted base rates of applying this formula to an example of tariff schedule are shown in Table 1.

Figure 5
Equivalent Base Rate
Rational Formula



Once the base rates are obtained, the formula for tariff reductions should be applied accordingly.

C. Simulation

Table 1 shows the results of applying the "rational" approach to a given tariff structure. In the first and second columns, we establish a tariff schedule over 19 products with their applied tariffs. In the third column of the table, we show the equivalent base rates, computed by the rational formula.

Table 1
Applied and base rates tariffs in a hypothetical case

Good *X* (1)	Applied Tariff $t_0(x)$ (2)	Base Rate Rational Formula $t_1(x)$ (3)	Base Rate Rational Formula $t_1(x)$ (4)
1	0	15.0	20.0
2	5	17.9	21.0
3	10	21.3	23.3
4	15	25.0	26.4
5	20	29.0	30.0
6	25	33.2	33.9
7	30	37.5	38.0
8	35	41.9	42.3
9	40	46.4	46.7
10	45	51.0	51.2
11	50	55.6	55.7
12	55	60.3	60.3
13	60	65.0	65.0
14	65	69.7	69.7
15	70	74.5	74.4
16	75	79.3	79.2
17	80	84.1	84.0
18	85	88.9	88.8
19	90	93.8	93.6

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