

ON THE EQUIVALENCE OF TARIFFS AND QUOTAS FOR SENSITIVE PRODUCTS IN THE WTO AGRICULTURAL NEGOTIATIONS

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January 2006

Abstract

This paper outlines a method consistent with trade theory to establish equivalent quotas for tariffs that are not reduced fully. This is approach agreed to in the 2004 WTO Framework for sensitive products (SnPs). The method is illustrated by estimating equivalent quotas for 60 products of four countries. Against this benchmark, the paper reviews recent negotiating proposals on SnPs. The main conclusions reached are as follows. First, the appropriate base for establishing the quotas is total import and not the TRQ commitments set in the Uruguay Round nor the ratio of TRQ to consumption. Any base other than total import would result into over- or under-estimation of the SnP quotas unless the TRQ commitment is identical to total import. Second, and which is the substantive part of the paper, for a method to be consistent with trade theory, the SnP quotas have to be established on the basis of four parameters: base import level, elasticity of import demand, deviation from normal tariff cut and initial bound tariff. The formula is described in the paper. The main difficulty in using this formula is determining and agreeing to the values of the import demand elasticities, which are not statistics but behavioural parameters. An alternative discussed is using some proxy. One such proxy would be import to consumption ratio which is highly correlated with import elasticities. Yet another option would be to reach an agreement on some uniform value of the elasticity, e.g. -4, that will apply to all products, although any such single number will over- or under-estimate the quotas. Third, the proposal in some negotiating texts that new TRQs should not be created because that will be a retrograde step, while correct on this particular point, may need to be reconsidered because first it is not clear whether the alternatives proposed for those countries without the Uruguay Round TRQs will have equivalent market effect as the TRQ, and second preventing some Members from having the TRQs for some historical reason unrelated to the SnP might be seen as an unfair deal. And fourth, establishing equivalent quota alone does not ensure market access as intended unless improvements are also made on the administration of the TRQs. Notably, for the equivalency to hold, the TRQ import regimes should be competitive rather than monopolistic.

I. INTRODUCTION

It was decided in the August 2004 Framework Agreement, and reaffirmed at the WTO Hong Kong Conference, that the new Agreement on Agriculture (AoA) will have a provision for a special category of products called sensitive products (SnPs). These products will be subject to less than full reduction in tariffs that apply to rest of the products. This deviation from the general tariff reduction does not come for free - "substantial improvement" in market access is still required for these products which would be achieved through combinations of lower

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tariff and tariff quota commitments. In other words, tariff quota is required for that part of the tariff that is not reduced, or is “deviated” from the normal formula reduction rate.

That some products should have a special status in the reform process has been a recurring claim in the agricultural negotiations. Such “flexibility” is often justified on the basis of the language “taking into account . . . non-trade concerns” in Article 20 (c) of the AoA. Some earlier negotiating texts had this flexibility built-in in the tariff cutting formula itself. For example, the formula proposed in the Harbinson text of March 2003 was based on the Uruguay Round (UR)-type minimum-average reductions that provided the flexibility. Likewise, the Debrez text that came out of Cancun also had the UR formula for one of the three tiers proposed. With the rejection of these formulae, attention shifted to the current idea of creating a separate category of sensitive products. In fact, it was in the Cancun text itself that the current idea was proposed for the first time: “for these import sensitive tariff lines, market access increase will result from a combination of tariff cuts and TRQs”. This idea was adopted in the 2004 Framework.

It took over a year after the Framework for concrete proposals to be tabled. In October 2005, three such proposals were tabled by Australia, EU and G20, and a fourth one by G10 in December of that year. As a result, it is now possible to analyse the proposals in an objective way, something that could not be done before.

The focus of this paper is on one key building block of the SnP – determining (substantially) equivalent quotas. In trade theory, there is a long tradition of analysis and discourse on this subject. Trade theory provides a way for quantifying equivalent quotas of tariffs, or vice versa. This paper uses the standard partial equilibrium method to quantify equivalent quotas for the portion of the tariff that is not reduced as per the general tariff cutting formula. The approach and the results provide a benchmark against which to review the recent proposals on the SnP. While it will not be practical in an environment of multilateral trade negotiations to apply in entirety the standard method used in trade policy analysis, it is desirable that the method used for establishing the SnP quotas is consistent to the extent possible with trade theory.

The rest of the paper is structured as follows. The next section outlines a method for computing equivalent quotas and illustrates the results for 60 products (15 products and four countries). Section III introduces recent negotiating proposals on SnPs and addresses the question: “what might be done in the negotiations”, i.e. what is desirable and practical. Section IV summarizes the main conclusions.

II. ESTIMATING EQUIVALENT-QUOTAS FOR DEVIATIONS IN TARIFF CUTS

Tariff-quota equivalency in trade theory

Given that tariffs and quotas have been the two most common policy instruments for regulating imports, their implications for trade, welfare and other outcomes have been extensively studied in trade literature, both theoretical and applied. One topic that has received much attention in this regard is the issue of “equivalency” of the two instruments. Several analytical works are prominent on the subject. Bhagwati (1965) is a seminal paper. It shows how the equivalency breaks down when import market is monopolistic. Further analysis by Shibata (1968) as a commentary on Bhagwati and the subsequent reply by

Bhagwati (1968) demonstrated the non-equivalence also when export supply is non-competitive. This theme has also been analysed extensively in several chapters in the book by Helpman and Krugman (1989). They show that the equivalency breaks down under a variety of non-competitive markets.

One of the many insights that these analytical works provide, and which is relevant to the theme of this paper and to the topic of the import quota in general, is the criteria to define or assess the equivalency. These criteria include, for example, the level of import, the level of domestic price (relative to external price), level of domestic production as well as revenue and welfare. It is possible that the equivalency holds for some criteria but not for others. As an example, Helpman and Krugman conclude in one of their chapters that “the moral of the story is therefore clear: an import quota creates more domestic monopoly power than a tariff that restricts imports by the same amount, and it therefore leads both to lower domestic output and a higher domestic price. Although both the tariff and the quota reduce welfare in this model, the quota obviously reduces more”. It is no wonder that the more liberal camp in the WTO membership prefers tariffs to quotas.

It is pertinent to note here that the issue of equivalency (of tariffs, in this case) was a headline topic during 2004 and 2005 in the context of the EU’s effort to find an equivalent tariff on bananas to replace the TRQ regime. The problem in this case was that several objectives had to be met simultaneously, such as maintaining market access for different suppliers and pre-reform margins of preference. A recent paper by Arias et al. (2005) has shown that the various policy objectives pursued under the TRQ-based bananas import regime could not be simultaneously achieved under a tariff-only regime, i.e. the equivalency is very difficult to find.

In summary, therefore, there are several situations where the equivalency between tariffs and quotas breaks down. A great deal of this has to do with the imperfect competition of the markets. In the case of agriculture, global markets are generally considered to be competitive. However, as one comes down to individual countries and some of the import regimes in place, there are reasons to question this view. This is particularly the case where some form of monopoly is maintained on the import side, e.g. with state trading enterprises and the way TRQs are administered. Many studies have commented on how these import regimes maintain elements of monopoly. Given that current TRQs cover a large part of agricultural trade and a large segment of domestic production of sensitive products,² the theoretical insight on the quotas not being equivalent to tariffs is not just an academic concern but is of considerable practical significance for trade.³

The rest of the section outlines a standard partial equilibrium framework for estimating equivalent quotas and applies the method for estimating TRQs for 60 products (15 products each for four countries). This framework is based on the assumption of competitive markets, which are what are required for the equivalency to hold.

² Although only about 30% of the WTO Members use TRQs and about 20% of the tariff lines have TRQs, de Gorter and Kliauga (2005) show that the TRQs may cover over 50% of agricultural production in the OECD countries and constitute 43% of the total trade.

³ In several recent papers, Steve McCorrison and Don MacLaren have developed theoretical models and numerically calibrated examples showing the trade-restricting effects of state trading enterprises in the presence of import monopolies. These results also apply to TRQs that create import monopolies. See for example McCorrison and MacLaren (2005).

The analytics of the tariff-quota equivalency

In a simple one-commodity partial equilibrium model, a change in import resulting from a change in domestic price is determined by the elasticity of import demand as follows:

$$\eta_m = - (\Delta M/M_0)/(\Delta P/P_0) \dots\dots\dots (1)$$

where η_m is import demand elasticity and $\Delta M/M_0$ and $\Delta P/P_0$ are percentage changes in import and domestic price. ΔM and ΔP are absolute changes in the two variables while M_0 and P_0 are their base period values.

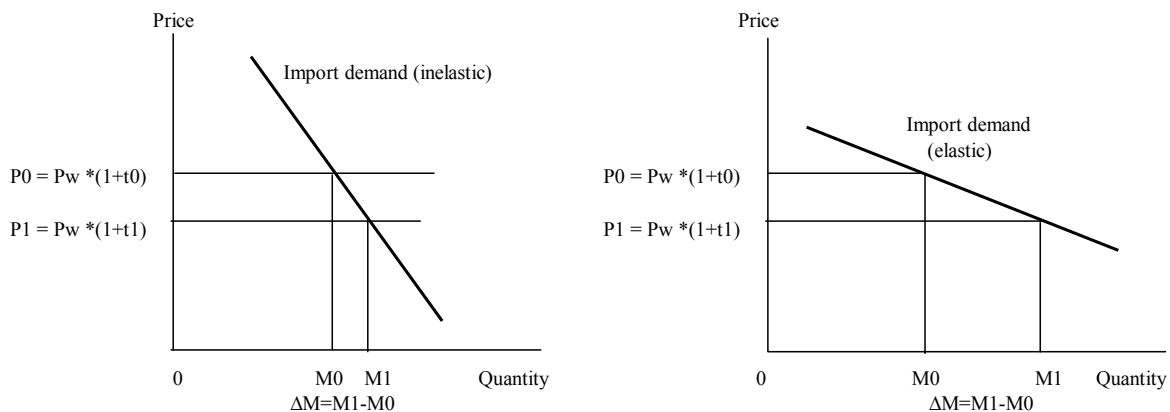
Figure 1 shows the relationship between import volume and domestic price. A given reduction in domestic price induces a smaller change in import when import demand is inelastic (left-panel) than when it is elastic (right-panel). It also shows that the domestic price is determined by tariffs and world prices. This is typically the case for an importable commodity. This relationship is expressed for the two periods shown in Figure 1 as follows:

$$P_0 = P^w * (1 + t_0) \dots\dots\dots (2)$$

$$P_1 = P^w * (1 + t_1) \dots\dots\dots (3)$$

where P_0 and P_1 are domestic prices in periods “0” (before the tariff cut) and “1” (after the tariff cut), P^w is the world price, and t_0 and t_1 are tariff rates in the two periods. In this example, for a given value of P^w , $t_0 > t_1$ and so $P_0 > P_1$. In order to be able to use the expression (1) for analysing the impact of tariff cuts, the percentage change in domestic price ($\Delta P/P_0$) needs to be related to the change in tariffs. That relationship shown in (4) is derived by assuming that the world price, P^w , remains fixed when tariffs and domestic prices are changed.⁴ This amounts to assuming infinite export supplies, which is a reasonable assumption to make for most importing countries.

Figure 1: Relationship between changes in domestic price and import



$$\Delta P/P_0 = \Delta t/(1 + t_0) \dots\dots\dots (4)$$

where Δt is $(t_1 - t_0)$, or the change in tariffs.

⁴ It is straightforward to derive alternative expressions for (4) to (7) with the P^w itself different in the two periods, if the purpose of the analysis is also to study the impact of a change in the world price.

Substituting (4) in (1), the expression for a percentage change in import following a percentage change in tariff is:

$$\Delta M/M_0 = - \eta_m \cdot \Delta t/(1+ t_0) \dots\dots\dots (5)$$

This can also be expressed in terms of the level of import itself following the tariff change:

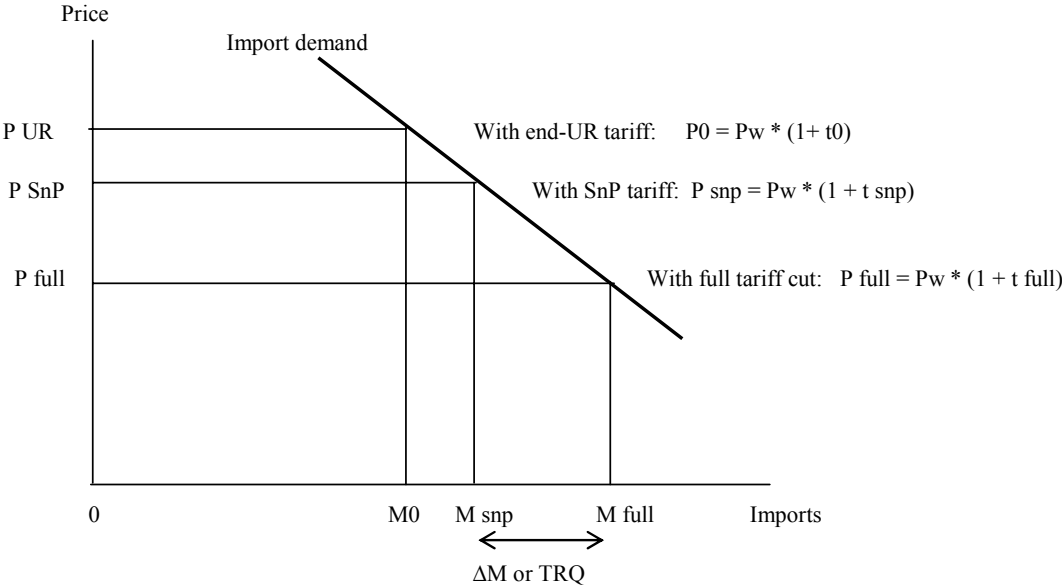
$$M_1 = M_0 (1 - \eta_m \cdot \Delta t/(1+ t_0)) \dots\dots\dots (6)$$

This is the expression that would be used for determine the level of import or quota that is equivalent to the difference in tariffs, Δt . In the context of the SnP, this expression can be made more explicit. In this case, in addition to the base period or end-UR tariff (t_0), there are two reduction rates or new tariffs, which are the SnP reduction rate and the resulting tariff (say t_{snp}) and the full tariff cut and the resulting tariff, say t_{full} . As shown in Figure 2, the required volume of import or TRQ corresponding to the deviation from full tariff cut is the value of $(M_{full} - M_{snp})$ in the x-axis. M_{full} is the import volume when the base tariff is cut in full as per the tiered formula while the M_{snp} is the import level when the tariff is reduced to t_{snp} only. Manipulating expression (6) further and using these three tariffs, expression (7) allows direct computation of the TRQs on the basis of t_{snp} and t_{full} , i.e. the deviation in the two tariffs or alternatively in tariff reduction rates:

$$(M_{full} - M_{snp}) = M_0 * \eta_m * (t_{snp} - t_{full})/(1+ t_0) \dots\dots\dots (7)$$

($\eta_m > 0$). As an example, if $t_0 = 1$ (or 100% tariff), a 40% normal tiered reduction rate implies $t_{full} = 0.6$ (60% tariff) while t_{snp} could be equal to 0.85 (85% tariff) if the SnP reduction rate is assumed to be 15% only. In the above formula, then, $(t_{snp} - t_{full})$ or Δt in the previous expressions is 25 percentage points, which is also the same as the percentage deviation from full cut, or 40% - 15%. Expression (7) is used below for computing equivalent TRQs.

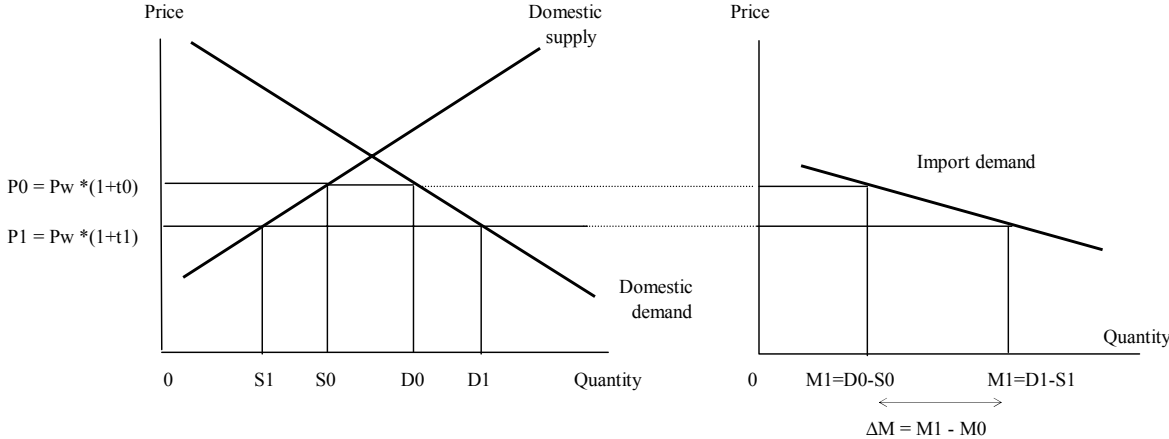
Figure 2: TRQ levels for deviations from normal tariff cuts



There are essentially three parameters that are required for using the formula: i) tariff deviation; ii) initial tariff; and iii) import demand elasticity. The first is assumed while the

second is readily known. The problem is with η_m because this is not readily available. But it can not be ignored either because this parameter plays a dominating role in the relationship. Later in Section III, a proxy for η_m is also suggested. In the mean time, given the important role of this parameter, it is useful to understand its determinants. For this, what follows is the derivation of import demand elasticity itself from its primary parameters that are relatively well known. Figure 3 is the equivalent analysis in graphical form.

Figure 3: Derivation of import demand curve from domestic demand and supply curves



For a tradable, import is equal to total demand (consumption) minus production, both expressed as functions of market prices:

$$M = D(p) - S(p) \dots\dots\dots (8)$$

The derivative of M with respect to price gives the following expression:

$$\Delta M / \Delta P = \Delta D / \Delta P - \Delta S / \Delta P$$

Multiplying both sides by P/M yields the following expression

$$\Delta M / \Delta P * P / M = \Delta D / \Delta P * P / M - \Delta S / \Delta P * P / M$$

$\Delta M / \Delta P * P / M$ is the elasticity of import demand. Multiplying the first term on the right side by D/D and the second term by S/S, and rearranging the terms, the following expression for import demand elasticity is derived:

$$\Delta M / \Delta P * P / M = \Delta D / \Delta P * P / D * D / M - \Delta S / \Delta P * P / S * S / M$$

This can be expressed in elasticity forms as follows:

$$\eta_m = \eta_d / (M/D) - \epsilon_s / (M/S) \dots\dots\dots (9)$$

(η_m and $\eta_d < 0$ and $\epsilon_s > 0$)

where η_m is import demand elasticity, η_d is domestic price elasticity of demand and ϵ_s is domestic price elasticity of production or supply. M/D and M/S are ratios of import to consumption and import to production, respectively.

This expression implies that, first, the more elastic (larger values) are the domestic demand and supply elasticities, higher is the import elasticity. Second, import demand elasticity varies inversely with the values of M/D and M/S, i.e. lower the import penetration ratios, larger is the import elasticity. This also means that the inelasticity of domestic demand and supply does not necessarily imply an inelastic import demand because of the M/D and M/S terms.

These parameters and relationships play a role in determining the quota equivalent of a tariff. As an example, expression (6) together with (9) implies that given a tariff structure and domestic demand and supply elasticities, the more self-sufficient a country is for the product analysed, the more its tariff structure will restrict trade. Here lies the asymmetrical effects of a tariff cut in terms of an equivalent quota – a given tariff cut (e.g. 20%) will have a larger impact on import (larger ΔM) where the level of self-sufficiency is low relative to the case where it is high.

Illustration of the estimates of equivalent-quotas

Data and parameters

The above methodology is applied in this section to estimate equivalent-quotas for a total of 60 products, 15 products each for four countries.⁵ Statistics on base period import, consumption and production levels, as well as domestic demand and supply elasticities, are from FAOSTAT and ATPSM model database.⁶ Bound tariffs for the base period (end of the UR implementation period) are compiled from the WITS data base. These two sets of statistics are sufficient for implementing the method. The statistics are reported in Annex Table 1.

In the formula derived above, namely $M_1 = M_0 (1 - \eta_m \cdot \Delta t / (1 + t_0))$, the deviation from tariff cuts, Δt , is assumed to be 25 percentage points for all products and countries. This follows from the difference between the assumed non-SnP or normal tariff cut of 40% and the SnP tariff cut of 15%. The other parameter, initial tariff bound tariff or t_0 , varies for the individual products.

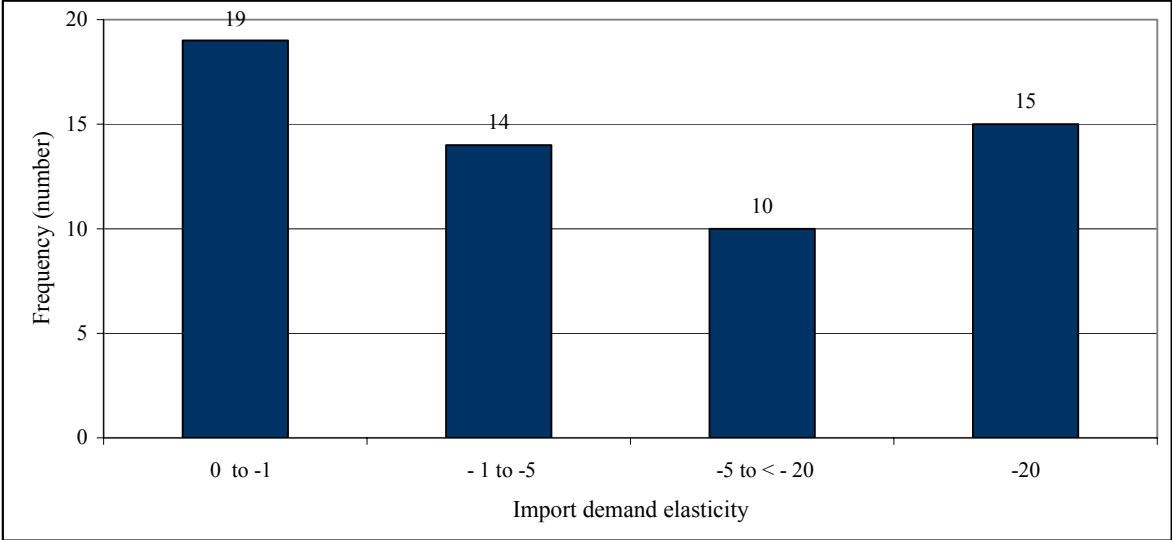
The other key parameter is import demand elasticity, or η_m , which is determined by domestic supply and demand elasticities, ϵ_s and η_d , and the M/D and M/S ratios. The values of ϵ_s and η_d are taken from the ATPSM model for the respective countries and products. For the 60 products covered, ϵ_s ranges between 0.07 and 0.83 with a simple average of 0.26, while η_d varies between -0.10 and -1.0 with a simple average of -0.51. The variation in import penetration ratios is much wider, between zero and 100% in the case of the M/D (little or no import to almost all consumption met by imports), and in the case of the M/S between zero (no import) and infinity (no domestic production). For the 60 cases analysed, the M/D ratio was below 10% in 25 cases, between 10 and 90% in another 25 cases and 100% in 10 cases.

⁵ The four countries are named A, B, C and D in the paper in view of the sensitivity of the subject matter in the middle of the negotiations. There is no particular reason for choosing these countries – they nevertheless represent a good sample in terms of the height of the initial bound tariffs and the M/D ratios. It is very unlikely that the major conclusions reached will change by adding more countries in the analysis. All the data used are available in the public domain.

⁶ The ATPSM model, as well as the documentation, is available for download from the UNCTAD website, www.unctad.org. The ATPSM is a global trade model based on partial equilibrium framework and covers 162 countries separately. There are several papers on the application of the model, e.g. Poonyth and Sharma (2004).

Figure 4 shows the frequency distribution of the computed import demand elasticities. In 15 of the 58 cases where η_m could be computed, its value was very high - in excess of -100 in nine cases and between -20 to -100 in another six cases (in one case it was close to -50 000!). These were the instances where imports were close to zero and so η_m was very high. For these 15 cases, the η_m was set at -20, which is a common practice in empirical work. Of the remaining 43 elasticities, the value of η_m was below -1 in 19 cases, between -1 and -5 in 14 cases and between -5 and -10 in 10 cases. The overall average value of η_m for the 58 cases was - 8 (and -3.8 when the 15 cases with $\eta_m = -20$ are excluded).⁷

Figure 4: Frequency distribution of the computed import demand elasticities



Source: Author.

Results

Equivalent TRQ levels for deviations from full tariff cuts

Table 1 presents estimated additional import, ΔM , or equivalent TRQ, for 25 percentage points deviation from normal tariff cuts. Thus, as examples, for Country A, the bovine meat quota is 4 100 tonnes (which is 1.8% of base import of 235 000 tonnes) while wheat quota is 62 700 tonnes (1.3% of base import of five million tonnes). There is obviously a wide variation in estimated quota levels across products, reflecting differences in domestic prices following tariff cuts and import demand elasticities. There are several cases in Table 1 where the estimated quotas are even higher than base import volumes. For example, ΔM exceeds base import volume by over 300% for bovine and sheep meat for Country D. This was because the base import levels were negligible, e.g. only 261 tonnes and 4 tonnes of bovine and sheep meat respectively.

⁷ Although not reported in the paper, results were also examined for alternative assumptions about domestic supply and demand elasticities, which give different values of the import demand elasticities. Compared with the value of - 8 resulting from the ATPSM elasticities, the simple average η_m was -5 with very low domestic demand and supply elasticities (-0.1 and 0.1) and -9.6 with very high (-0.9 and 0.9) domestic elasticities. The difference in these η_m 's is not that large because of the dominating role of the M/D and M/S ratios.

Table 1: Estimated additional imports or TRQs equivalent to tariffs not reduced

Products	Base	Additional import or TRQ		Base	Additional import or TRQ	
	import (000 tonnes)	Volume (000 tonnes)	Change (%)	import (000 tonnes)	Volume (000 tonnes)	Change (%)
	----- Country A -----			----- Country B -----		
Bovine meat	235.3	4.1	1.8	101.4	23.2	22.9
Sheepmeat	10.0	0.8	8.2	0.6	1.0	166.7
Pigmeat	0.0	-	-	0.3	0.5	166.7
Poultry	1.7	3.2	187.5	16.2	24.4	150.3
Milk, conc.	26.9	0.1	0.5	100.0	9.7	9.7
Butter	26.2	0.8	3.2	11.6	0.8	6.8
Cheese	8.7	2.1	23.6	4.7	0.2	3.6
Wheat	4991	62.7	1.3	4226	225	5.3
Rice	1.2	1.0	83.3	1330	3410	256.3
Maize	5162	53.1	1.0	1265	678	53.6
Sugar	574	51.9	9.1	1654	200	12.1
Tea	71.7	2.0	2.8	2.6	4.6	173.2
Tobacco leaves	60.5	3.5	5.7	34.2	6.6	19.2
Oilseeds	293	20.1	6.9	1451	452	31.1
Vegetable oils	611	29.7	4.9	24.1	34.4	142.9
	----- Country C -----			----- Country D -----		
Bovine meat	0.1	0.2	166.7	0.3	0.9	346
Sheepmeat	0.8	0.1	7.6	0.0	0.0	346
Pigmeat	0.0	0.0	166.7	0.0	-	-
Poultry	2.0	3.3	166.7	8.8	20.0	227
Milk, conc.	44.5	1.9	4.2	6.6	0.4	6
Butter	1.5	0.1	7.7	3.9	9.9	256
Cheese	0.5	0.0	4.2	3.0	5.5	184
Wheat	889	25.9	2.9	966	1563	162
Rice	14.9	24.8	166.7	327	30	9
Maize	123	4.1	3.3	1286	271	21
Sugar	609	18.7	3.1	2.6	7.3	287
Tea	3.6	5.8	159.7	4.8	14.2	298
Tobacco leaves	5.6	0.5	8.2	62.2	8.3	13
Oilseeds	8.0	7.7	96.1	952	76	8
Vegetable oils	83.0	10.3	12.4	589	89	15

Note: The import levels or equivalent quotas correspond to 25% points deviation in tariffs (15% cut for SnPs and 40% for non-SnPs).

Source: Author.

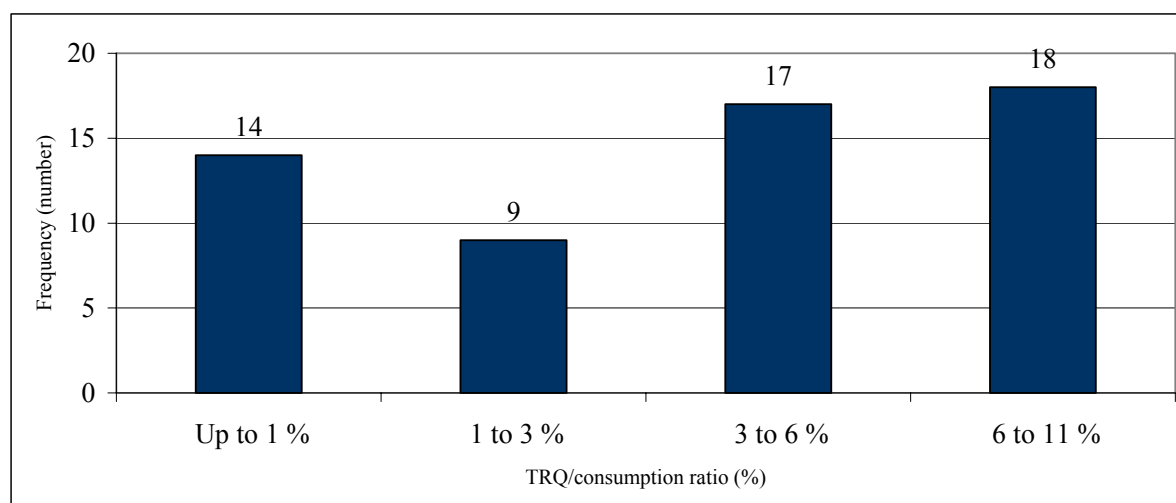
The TRQ levels are very small relative to base imports where production is negligible and so almost all consumption is imported. Wheat is one such commodity for several countries, including others not covered in this paper. In Country B for example with over 4 million tonnes of import and hardly any production, the estimated quota of 45 000 tonnes is only 1.1% of the base import. This is due to very low import demand elasticity as the M/D ratio was close to 100%. In such cases, even if the deviation from tariff cuts is large or the initial bound tariff very high (which was not the case for wheat in the above example), the impact on ΔM would still be small.

Resulting TRQ/consumption ratios

Presumably because the TRQs in the UR were established on the basis of the TRQ/D ratios, this ratio has received considerable prominence in the debates on the SnP as well as in some negotiating proposals, as one key parameter to be negotiated or made the basis for TRQ expansion. However, one of the key messages of the conceptual analysis in this section is that it is the quota level, in tonnes, that is what should be determined as equivalent to the deviation from tariff cuts and not the TRQ/D ratio.

In order to stress the point that there is no single TRQ/D ratio that is appropriate for the purpose of the SnPs, Figure 5 shows the frequency distribution of the TRQ/D ratios computed for all 58 cases using the TRQ levels estimated above and consumption statistics. Table 2 shows the numbers also. The overall simple average TRQ/D ratio is 4.3%, with the distribution as follows: less than 1% in 14 cases; between 1-3% 9 cases; 3-6% in 17 cases; and 6-11% in 18 cases. The TRQ/D ratios vary markedly because of the wide variation in both the variables - the estimated equivalent TRQs and domestic consumption. Except for Country A, the value of TRQ/D is about 5% on average for the 15 products for countries B, C and D. The average for A is only 1.7%. One of the reasons for the relatively low average ratio for Country A is much lower initial bound tariff (28% versus 50-135% for Countries B-D). The other reason is that due to the M/D and M/S ratios, the average value of the import elasticity for Country A is about half of that of the other three countries.

Figure 5: Frequency distribution of the TRQ to consumption ratios



Note: The numerator of the ratio is TRQ levels as computed in Table 1 and the denominator is consumption.
Source: Author.

TRQ expansion - determining annual TRQ levels for the implementation period

Both the 2004 Framework and the negotiating proposals speak of TRQ expansion. The ideas in these texts are discussed in the next section. Irrespective of a method agreed, annual TRQ commitments have to be eventually specified in country Schedules. What follows discusses how the annual commitments may be determined based on the method used above.

Table 2: TRQs as percentage of domestic consumption

Products	Country A	Country B	Country C	Country D
Bovine meat	0.87	5.14	0.62	0.24
Sheepmeat	0.86	2.70	6.36	0.00
Pigmeat	-	0.13	0.96	-
Poultry	0.52	3.29	5.10	3.34
Milk, conc.	0.50	9.74	3.50	6.49
Butter	1.43	6.81	5.97	9.92
Cheese	1.37	3.57	4.18	9.37
Wheat	0.54	5.32	2.92	7.92
Rice	0.03	10.57	1.40	4.26
Maize	0.46	6.22	2.65	8.01
Sugar	2.55	6.21	2.77	0.45
Tea	2.80	6.43	9.36	8.94
Tobacco leaves	5.74	5.06	5.18	6.00
Oilseeds	3.74	6.95	9.31	4.03
Vegetable oils	4.10	0.89	8.13	5.79
Simple average	1.70	5.27	4.56	4.98

Note: These are TRQ/D ratios in percentage. TRQs levels are as estimated in Table 1. The denominator is total domestic consumption.

Source: Author.

As in the UR, the Doha Round tariff cuts will also be phased over the implementation period, say during 2007 to 2012. Thus, for example, the tiered cut rate of say 40% for the non-SnPs will be implemented only in the last year, 2012, with lower reduction rates for previous years, e.g. 6% cut in 2007. Likewise, although this needs to be clarified, the SnP reduction rate, say 15%, will also be implemented in 2012, i.e. the 25 percentage points deviation will be effective only in 2012. Because of this, the deviation would be very small (or zero if not negative) in the first year and would gradually increase over time to reach the 25 percentage points target in 2012.⁸ The TRQ levels, accordingly, should be smaller in the earlier years reaching the final level in 2012. Should the TRQs be estimated for each year starting in 2007 using the method discussed above? This can be done but would be too cumbersome and not worth the effort. Rather, what makes sense, given that the end of the implementation period TRQ level is known (the numbers in Table 1), the volumes for the earlier years are estimated by interpolation, for example, using the same rate as the annual reduction rate of the tariffs, e.g. 6% per year in this example.

⁸ The alternative, i.e. to reduce the SnP tariffs by 15% in the first year itself, will produce anomalous results for earlier years in that the reduction rate for a SnP is higher than for a non-SnP.

III. FROM NEGOTIATING PROPOSALS TO NEGOTIATING A DEAL: WHAT MIGHT BE DONE?

An overview of the negotiating proposals on the “treatment” of sensitive products

The idea that some products should enjoy “flexibility” in tariff cuts has been a recurring theme in many negotiating proposals from the outset. This is often justified on the basis of the language “taking into account . . . non-trade concerns” in Article 20 (c) of the AoA. In some earlier negotiating texts, this flexibility was built-in in the tariff-cutting formula itself, e.g. in the Harbinson formula of March 2003 and later in the Debrez text that came out of Cancun. With the rejection of these approaches, attention shifted to the current idea of creating a separate category of sensitive products. The accord on the table currently is the 2004 Framework Agreement, which has the following five substantive elements on the treatment of SnPs.

- The principle of “substantial improvement” in market access to apply to each SnP.
- This is to be achieved through combinations of tariff reductions and tariff quota commitments.
- Some TRQ expansion is required for all such products.
- A base for such an expansion is to be established, taking account of “coherent and equitable” criteria to be developed.
- For these products, the TRQ expansion is to be provided under specific rules to be negotiated taking into account deviations from the tariff formula.

Being a “framework”, not all of these agreements are clear, something that is also reflected in the subsequent negotiating texts. The Framework essentially envisaged a two-step approach: the determination of an appropriate base for providing market access; and the expansion of the base to establish TRQs taking into account the principle of deviation from full tariff cut.

After over a year of discussion on the Framework in fairly general terms, negotiating proposals with fairly concrete ideas were tabled by Australia, EU, G10 and G20 in the last quarter of 2005. On the treatment of the SnPs, the following three questions are of direct relevance to this paper.⁹

- Should new TRQs be created?
- What should be the base for expansion?
- How to expand the base or/and establish TRQ commitments?

WTO negotiating texts are rarely 100% clear on the specific ideas made as room is often left for further clarification, amendment and retraction. Within this limitation, an attempt is made in Table 3 to organize the proposals along the three specific questions asked above.

On the first question, the majority view seems to be against creating new TRQs. The Australian text for example clearly states that the creation of new TRQs would be a retrograde step, contrary to the direction of the WTO agricultural reform, and should be avoided, for

⁹ All proposals also address S&D treatment in some form, which range from a simple statement that such a treatment will be accorded to the developing countries to something more explicit like the usual 2/3rd rule for them.

Table 3: Proposals on three key elements on the “treatment” of sensitive products

Negotiating texts	Three key questions		
	Should new TRQs be created?	What is the base for expansion?	How to expand the base, or/and establish TRQ commitments?
Australia	No new TRQs, both for developed and developing countries	UR TRQs	Expand TRQ volumes by some % of consumption based on deviation from normal tariff cuts
EU	Possible – this option kept open	Base period import level	Trade theory-consistent formula (based on tariff deviation and import elasticity)
G10	No new TRQs	UR TRQs	Based on current TRQ/consumption ratio and deviation from tariff cuts
G20	No for developed countries; possible for developing countries	TRQ/consumption ratio (at least 6%)	Not proposed as yet

Source: Respective negotiating texts. These are cited in the reference along with the web address.

both the developed and developing countries. The G20 text also ruled out creating new TRQs for developed countries, but has retained the possibility as one of the options for those developing countries that do not have TRQ commitments currently. On the other hand, the EU proposal has kept open the option of new TRQ creation, “for the time being”.

As regards the second question in Table 3, i.e. the base for expansion, there seems to be three positions: the UR quota level; TRQ to consumption (TRQ/D) ratio; and total import. The Australian and G10 texts proposed UR TRQs as the base. The G20 text states that a “coherent and equitable” way would be to proceed in a way similar to that in the UR. Thus, it proposed that for each product considered sensitive at least 6% of the annual domestic consumption for the base period would be the initial TRQ level. It is not explained how this 6% was determined.

The EU idea, on the other hand, is to use total import as the base for expansion. This is identical to the analysis in Section II of this paper. The EU’s argument is that it is the level of the total import that is affected by a reduction in protection, rather than current quota, domestic consumption or their ratio.

As regards the third question asked above, while the G20 has not as yet proposed a method for expansion, the other three proposals agree that the method should be based on the Framework’s principle of deviations from full tariff cuts. There are however differences in the proposals.

The Australian text states that the only coherent and equitable basis for TRQ expansion is *by a percentage of current domestic consumption* (original emphasis). It accordingly proposed a “stepped” approach to TRQ expansion whereby the higher the tier (and therefore wider the

percentage points deviation from the formula cuts) the greater the rate of TRQ expansion. The following percentage points were suggested:

- by 7.5% of domestic consumption for tariff lines falling in Tier 1 (lowest tier);
- by 8.5% of domestic consumption for Tier 2 lines;
- by 9.5% of domestic consumption for Tier 3 lines; and
- by 10.5% of domestic consumption for Tier 4 lines (highest tier).

However, where the current TRQ/D ratio exceeds 25%, bound tariff would be reduced by 60% of the normal tier rate and the TRQ expanded by only 50% of the required expansion rates as indicated above.

The G10 text proposed an approach but without specific numbers. The current quota levels are to be expanded taking into account two criteria: i) deviation from tariff cut; and ii) current TRQ/D ratio. For the latter, the rule suggested was higher the rate of expansion smaller the TRQ/D ratio, and vice versa. However, where the current TRQ/D ratio is exceptionally high, the TRQ commitment may be further adjusted based on an equitable principle, which however is not explained.

The EU proposal on expansion is identical to that presented in Section II of this paper with the exception of the value of one parameter. The base for expansion is total import and not the current TRQ. Using the same notations as in Section II, the EU proposal can be expressed algebraically as follows:

$$\text{Expand TRQ by } x\%, \text{ where } x\% = \Delta M/M_0 = 0.8 * \Delta t / (1+t_0)$$

Note that this TRQ is not the UR TRQ but the new SnP TRQ that will be established following the expansion of the base period import.

This formula is identical to the expression (5) in Section II, i.e. $\Delta M/M_0 = -\eta_m \cdot \Delta t / (1+t_0)$, the only difference being the value 0.8 in place of the import demand elasticity, η_m . The argument made for this is that a value of 1 for the import demand elasticity would result into “equivalent” quota whereas the Framework required only “substantial” access. Thus, 80% is interpreted to be “substantial”.

Although not directly related to the main issue addressed in this paper, proposals are also made for countries without TRQs currently, both developed and developing. The Australian text suggested two options: phasing in the core tariff formula cut over an additional period of 50% of the standard implementation period; or backloading the cut into the latter part of the implementation period, providing a quarter of the cut is accomplished within the first half of the regular implementation period.¹⁰ In any case, there will be no new TRQ creation.

The G20 has made three proposals for developing countries according to the following situations: i) for cases where TRQs were established in the UR itself; ii) for cases where TRQs were established after the UR negotiations, including by new acceding countries; and iii) those without any TRQ. For the first category, the same rules would apply as for the developed countries with UR TRQs, subject to the standard S&D treatment (i.e. the 2/3rd

¹⁰ In the case of the developing countries, the following S&D treatment is proposed: a longer implementation period and the usual 2/3rd rule where the SnPs happen to be current TRQ products.

commitment). In the case of the second category, i.e. where TRQs did not result from the UR negotiating process but through subsequent negotiations,¹¹ and in recent accessions, the base shall be the minimum access level of annual commercial domestic consumption (4%, or 2/3rd of the 6% for the developed countries) or the current access, whichever is lower. For the third case, i.e. countries without any TRQ, the following options are proposed:

- Lower than applicable tariff reduction¹², or
- Higher maximum deviation (of 45%) to be implemented over a shorter period, or
- Longer implementation period for the applicable (i.e. tier-specific) tariff reduction, or
- Other options, to be defined, including TRQ creation.

In addition to these official proposals and the analysis in Section II, it is pertinent here to review an approach suggested by Konandreas (2004) in view of the fresh idea that it provides. His proposed method for implementing the essence of the Framework is based on two key parameters, a *non-compliance ratio* and a *generally applicable maximum TRQ commitment level*. Non-compliance is defined as the difference between the required tariff cut and the actual cut. The relative degree by which the tariff cut for a product does not comply with the general formula is defined as the non-compliance ratio:

$$\text{Non-compliance ratio} = (\text{Required cut} - \text{Actual cut}) / (\text{Required cut})$$

For non-SnPs, compliance is full by definition and so the ratio is 0 while it is somewhere between 0 and 1 for SnPs. The additional TRQ obligation for SnPs would then amount to this non-compliance ratio times a negotiated “maximum additional TRQ commitment” as percentage of domestic consumption. As an example, assume that the latter is 10%. Also assume that for a SnP it is decided to reduce the bound tariff of 70% by 15 percentage points (i.e. from 70% to 55%) while the required formula cut is 20 percentage points. In this case, the non-compliance part is 5 percentage points and the non-compliance ratio is 0.25. Then, the TRQ for that product would be 2.5% of consumption (0.25 times 10%). In another example, if the non-compliance ratio is much larger, 0.75, the TRQ commitment required is 7.5% of consumption.

To implement this approach, the sole parameter that needs to be negotiated is the maximum TRQ commitment for non-compliance. Konandreas discusses some options here, e.g. whether this maximum should be uniform across the board or be differentiated according to countries and products based on criteria like S&D and the level of the bound tariffs. For example, a case could be made for a lower TRQ commitment for products with already low initial bound tariffs.

Negotiating a deal: what might be done

On the basis of the above review of the negotiating proposals, there are four issues that need to be sorted out in order to make progress. First, an agreement is needed on the base itself, notably between current quota and total import. Second, a decision has to be made on the method for expanding the base for establishing SnP quotas, ensuring that the method is consistent with insights from trade theory rather than being *ad hoc*. Third, there is the question of practicality of the method used in the context of the negotiations. And fourth,

¹¹ For example, through negotiations under Article XXVIII of GATT 1994.

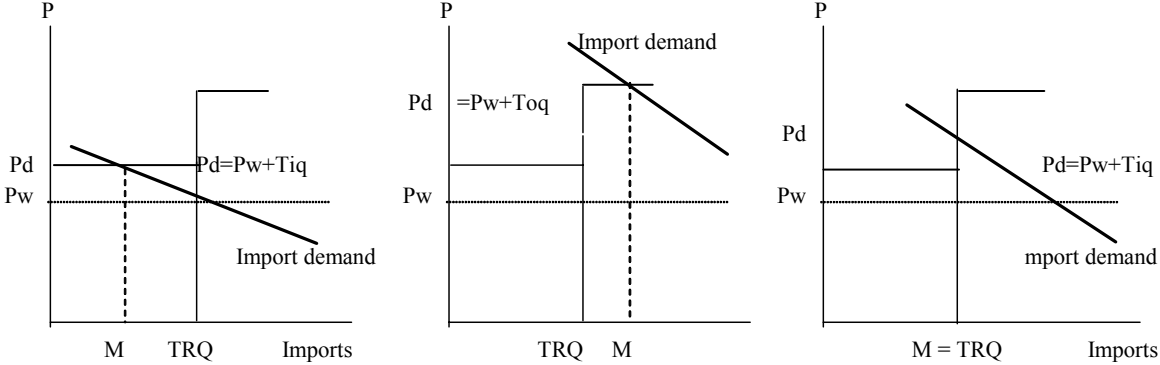
¹² This is not clear – it could mean lower than the usual tariff cut but without having to compensate through TRQs.

some of the implications of the proposals on not creating new TRQs should be understood and explained well.

On the first issue, the key point is understanding the implications of using current or UR TRQ quota commitments as the base versus total import. The UR TRQs were established in an altogether different context. The concern then was ensuring some trade where there was none or very little previously (minimum access) and that current trade is continued (current access). The quota for the former was established as some percentage of domestic consumption while current import provided the basis for the current access quota. The final TRQ commitments in the country Schedules combined these two elements. Thus, depending on the minimum and current access situation for particular products then, the UR TRQ commitments could be very different from total import. In those cases, a wrong choice of a base would either overestimate or underestimate the SnP quota.

Moreover, the end-UR actual TRQ levels can not also be used as a base. Figure 6 shows this point using the familiar three-regime economics of the TRQ (Abbot 2002). In the left panel, total import is less than the quota because of weak import demand while the opposite is the case in the middle panel due to strong demand. Import is equal to quota only in the intermediate regime (right panel). Thus, the choice of the base, a quota or import, would not matter only for those products that fall into the third regime.

Figure 6: The three regimes of a tariff-rate quota



Note: P_d and P_w are domestic and world prices; T_{iq} and T_{oq} are in-quota and out-of-quota tariffs; and M is total import.
 Source: Abbot (2002).

The other point that needs a clarification is why the base has to be total import and not the quota. Basically, as also argued in the EU proposal, a tariff cut whether full or partial impacts on total import and not on a fraction of it like current quota, nor directly on a variable like domestic consumption. Total import was also the key variable in the theory-consistent method outlined in Section II, starting with the basic formula, $\Delta M/M_0 = -\eta_m * (\Delta P/P_0)$. For the same reason, a base like the TRQ/D ratio made up of two variables would also be inappropriate because there is no direct connection between a change in tariff and this ratio. This would be true even if TRQ were a correct base.

The second key issue requiring clarification is the method for TRQ expansion. The method presented in Section II is based on standard trade theory and so could be the benchmark against which to assess other proposals. The Australian text proposed a stepped approach such that the rate of quota expansion is higher for products falling into upper tiers (higher tariff rates) where deviations from formula cuts would be larger. Although thus the deviation

principle is taken into account, the specific numbers suggested (in the range of 7.5% to 10.5% of consumption) are *ad hoc*, at least until these are explained. More fundamentally, as discussed in Section II, domestic consumption should not play any role in determining new quotas. The G10 text, at this stage only a framework, also proposed taking into account current TRQ/D ratio in addition to deviations from tariff cuts. As a result, this method also suffers from the problems discussed above. The G20 is yet to propose a method for expansion. In any case, its proposal to establish new quotas on the basis of a base like the proposed 6% TRQ/D ratio is not consistent with insights from trade theory. Finally, and in contrast to these ideas, the EU proposal is consistent with the analysis in Section II, both in terms of the base (import) and method, with one exception.

This exception is the number 0.8 in the EU formula in place of the import demand elasticity, η_m in the formula derived in Section II. The value of η_m assumed in the EU formula is actually 1 while 0.8 is used in the formula on the argument that the Framework called for “substantial” and not “equivalent” quota (thus, “80%” is interpreted as being “substantial”). This number is far smaller than 8, the average computed in Section II for the 58 products covered. In only 1/3rd of those 58 cases was η_m less than unity. Even when domestic supply and demand elasticities are assumed to be very inelastic (namely -0.1 and 0.1), the average η_m is still 5.2. This is because the import penetration ratios (M/D and M/Q) play a dominating role in the determination of the value of η_m .

The World Bank website provides in public domain import demand elasticities for 117 countries at the 6-digit HS level.¹³ These were estimated using a different method from that in Section II and are intended to be used for a variety of analytical purposes including the measurement of trade restrictiveness indices. Although elasticities are not 100% complete for all tariff lines, the simple average for agricultural tariff lines for the four countries covered in this paper is -2.8.

The third issue for clarification is the question of practicality of a method in the context of the WTO negotiations. Presumably, some of the proposals that suggested current TRQs or the TRQ/D ratio for the base for expansion, as well as *ad hoc* rates of expansion, are motivated by practicality considerations. There is obviously a trade-off here – between practicality and soundness of a method. The analytical soundness of these approaches was discussed above. On the other hand, both the method developed in Section II and the one proposed by the EU are consistent with basic trade theory. The question asked here is: to what extent is this approach feasible in a negotiating context? In using the formula, $\Delta M/M_0 = -\eta_m * [\Delta t / (1 + t_0)]$, the main problem is agreeing to a value of η_m since Δt is a negotiated parameter and t_0 is bound tariff, and so both are readily known.

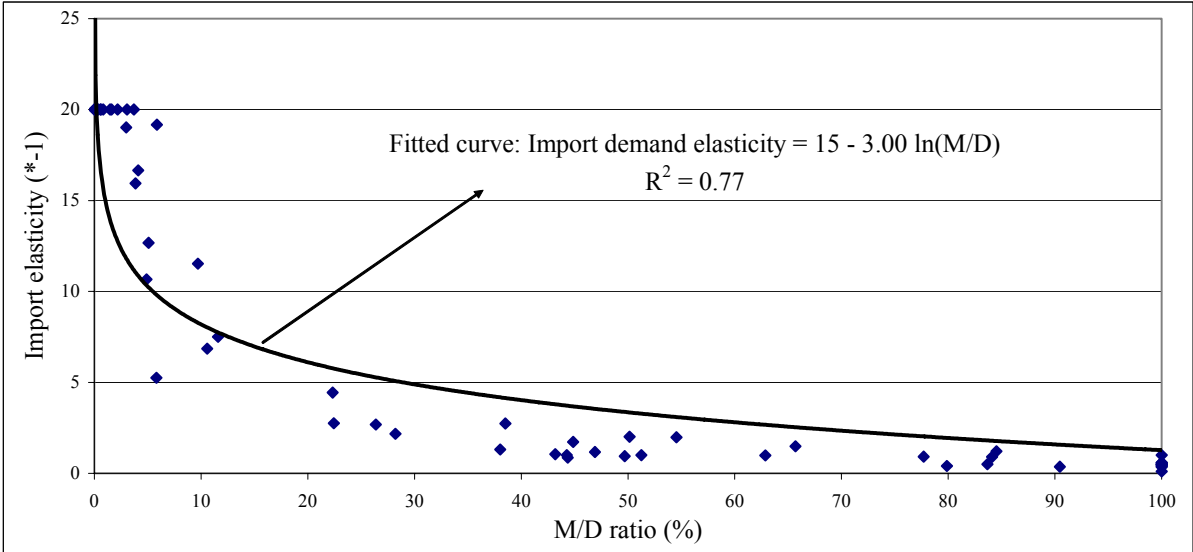
Although trade analysts routinely use η_m 's in models and analyses, these are not pure statistics as they also reflect behavioural responses of economic agents. Even among analysts, while there is a fair degree of agreement on the range of these values, there is no consensus on a particular number. Obviously, elasticities estimated econometrically or otherwise will not be entertained in trade negotiations. On the other hand, ignoring η_m altogether in estimating ΔM would bias the SnP TRQ levels markedly because this parameter exerts a considerable weight in the formula.

¹³ The estimates are maintained at <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/TRADE/>. The method used for estimating the elasticities is different from that used in Section II of this paper. That method is discussed in a paper by Kee et al. (2004) and is available at the above web address.

One way to resolve this matter could be to reach an agreement on a number that is sufficiently reasonable and to apply it across the board to all products and countries. This could be, for example, 6.4, or 80% of 8, assuming 80% is “substantial”. Many would find this number to be on the higher side, also in view of the use of 0.8 in the EU formula. Likewise, it could be 2.2, which is 80% of the average value of 2.8 in the World Bank’s estimates for the four countries covered. Or, this could be 4 (80% of 5), the middle value in this range. In any of these cases, the estimated TRQs will be either over- or under-estimated because the η_m ’s are different for different commodities.

An alternative approach that reduces this bias considerably is to use the M/D ratio itself because this is a very good proxy for η_m (Figure 7). And unlike η_m , both import and consumption are statistics that are largely available as well as acceptable in the negotiations. The relationship is non-linear, with low M/D ratios associated with high values of η_m , which drop sharply as import penetration approaches 20% or more. The R^2 value for the fitted curve is 0.77 (correlation coefficient of 0.90). Table 4 shows in numbers the relationship in Figure 7, essentially providing a reference table for reading the value of η_m corresponding to a given M/D ratio. Thus, for example, for a product with the M/D ratio of less than 1%, a value of (negative) 17 for η_m could be used in the formula for computing TRQ. Similarly, where the M/D ratio exceeds 90%, the appropriate η_m is about (negative) 1.2.¹⁴

Figure 7: Relationship between import demand elasticity and import penetration



The one drawback of the above approach is that statistics are still required on consumption. Although consumption data are available in most national statistics, as well as in FAOSTAT in its food and agricultural commodity balances for a large number of commodities, the coverage can not be 100% complete at the 6-digit HS level. Some compromise is unavoidable here. Without consumption data, some other approaches discussed above like using the TRQ/D ratio will also not work. If consumption data is indeed the binding constraint, then the approach that takes into account product-specific import demand elasticity can not be used. The only alternative then is to use some single value of η_m for all SnPs, knowing fully well

¹⁴ Indeed, the G10 proposal considered this relationship, albeit implicitly, in proposing an adjustment factor (in addition to the deviation from tariff formula) that will further expand the SnP TRQs where import penetration is low and vice versa.

Table 4: Import demand elasticities corresponding to different degrees of import penetration

	----- Import penetration ratios (M/D %) -----								
	< 1%	1-5%	5-10%	10-20%	20-30%	30-50%	50-70%	70-90%	Over 90%
Import demand elasticity (η_m)	17.1	12.2	8.9	6.9	5.3	3.9	2.7	1.8	1.3

Note: Import demand elasticities are negative numbers (i.e. all η_m values above are negative). Elasticities are computed from the fitted equation: $\eta_m = 15 - 3.00 * \ln (M/D)$.

that the over- and under-estimation of the TRQs could be substantial.

Before closing this sub-section, there is one last issue that is worth noting which is the implications of the proposals that no new TRQs should be created for the SnPs. The primary reason for this proposal is presumably that this will be a retrograde step in the reform process. However, the Framework does not prohibit new TRQs and so this option is not closed.

One assumption implicit in the proposals that did not favour new TRQs is that the SnP products would be the same as the current TRQ products, at least most of them. This is a fair assumption because import-sensitivity was a major reason why market access for these products was poor prior to 1995 and therefore the TRQs had to be created. But there is no reason to assume on *a priori* basis that all or most SnPs are necessarily covered by the current TRQs. Import sensitivity might have changed in the last 10-15 years, with some TRQ products no longer sensitive while others have become sensitive for a variety of reasons. For example, a highly protected and supported product that was sensitive in 1995 would no longer be so if those policies have been dismantled. Similarly, for a developing country for example, wheat may not have been an import-sensitive product prior to 1995 because this was an era where wheat could be imported cheap due to massive domestic and export subsidies as well as food aid. The future is expected to be very different for this country because under the new world market regime, nurturing domestic wheat production has become an option.

Not allowing new TRQs would affect the developing countries disproportionately because many of them do not have UR TRQs. Alternative proposals have been made, i.e. in lieu of the new TRQs. However, it is very difficult to verify if these alternatives are indeed equivalent in outcomes to TRQs. So far, not many developing countries have commented on the proposals and so their position is not known. It is possible that they may outrightly reject the proposal. This could also be taken as being against the principle of S&D treatment. More importantly, and as a matter of principle, it could be counterproductive to approach the issue with two different sets of rules for two categories of members on the basis of an argument that is not sound to start with, namely that a TRQ is a bad instrument and so those who do not have them should not seek it. If something is genuinely undesirable, the first-best approach would be to work to eliminate it.¹⁵ Indeed, issues related to the UR TRQs need to be addressed in the ongoing negotiations – but this is a separate matter altogether.¹⁶

¹⁵ This may, in the future, create an anomaly and discontent as was experienced in the UR with special agricultural safeguard (SSG) that was made accessible to some and denied to others for a not so sound reason.

¹⁶ The Framework rightly treats this matter separately from the SnP. The UR TRQs are mentioned in paragraph 35 of the Framework under “other elements”. The agenda could include for example whether to freeze the TRQs at the current levels or to further expand on the basis of minimum and current market access considerations, administrative methods including the in-quota tariff and so on.

IV. SUMMARY

The demandeurs of sensitive products (SnPs) see the instrument as a way of ensuring some flexibility in tariff cuts, and is often linked to the provision on non-trade concerns in Article 20 (c) of the AoA. An attempt was made in some earlier negotiating texts to provide for this flexibility within the tariff-cutting formula itself. This was rejected. The current agreement, the 2004 Framework, is to create a category of SnPs that will be subject to lesser than full tariff cuts but requiring tariff quotas so that the overall market access is still substantial. This paper presented a theory-consistent method for establishing equivalent quotas and provided estimates of the SnP quotas for a sample of products and countries. Against this benchmark, some recent proposals on the SnP were assessed. The following summarizes the main findings of the study.

First, some negotiating proposals seem to be mixing up the concept of the SnP's equivalent-quota with the TRQs established in the UR. These are two very different things. The UR TRQs were established in an altogether different context for ensuring minimum and current market access. On the other hand, the rationale for the SnP quotas is to provide an alternative instrument of market access in lieu of the full tariff cuts. As a result of this mix up, these proposals see the primary task at hand as being *expanding* the UR TRQs. The analysis in this paper showed that the appropriate base for the SnP quotas is total import and not the UR TRQ, nor the ratio of the TRQ to consumption as suggested in some proposals. Any base other than total import would lead to over- or under-estimation of the quotas unless the current TRQ commitments happen to be the same as total import.

Second, a formula was derived for establishing the size of the SnP quota that is consistent with trade theory and the Framework's principle of deviation from tariff cut, $\Delta M = - M_0 \cdot \eta_m \cdot \Delta t / (1 + t_0)$, where ΔM is the additional import or equivalent TRQ, M_0 is the base import, η_m is import demand elasticity, Δt is the deviation from tariff cut and t_0 is the initial bound tariff. The values of M_0 , Δt and t_0 are readily known while η_m is a parameter that reflects behavioural response and so is unlikely to be easily entertained in a WTO negotiating context. There is no such thing as universally accepted values of the η_m 's. On the other hand, this parameter can not be ignored either because it plays an important role in the formula. One option is to use some proxy for η_m . The degree of import penetration or the ratio of import to consumption was found to be a good proxy and might be used. If this also becomes unacceptable because consumption statistics are missing or unacceptable, an agreement would be needed for some uniform value of η_m applicable to all products. The average value of η_m computed in this paper for 58 products of four countries was 8. The value of η_m estimated in a World Bank study averages about 3 for 400 or so agricultural tariff lines per country. A η_m of about 5 would be in the middle of this range. "Substantially" equivalent could be 80% of the chosen number, as in the EU proposal. Given these differences, it will be a difficult task to agree to a particular number.

Third, the proposal in some negotiating texts that new TRQs should not be created because that will be a retrograde step may need to be reconsidered in light of the above analysis. There are many countries, notably developing countries, that do not have UR TRQs but may be interested on SnPs. Some alternative proposals have been made for them in some texts, such as lower than applicable tariff reduction rate, longer implementation period and so on, but it is not clear if these alternatives are equivalent to the correctly-estimated quotas. Preventing some Members from access to TRQs, and for a not-so-sound reason, might be seen as an

unfair outcome, as was the feeling with the Special Agricultural Safeguards in the Uruguay Round.

Fourth, beyond establishing the SnP quotas, additional measures will be needed for ensuring that market access is indeed genuine as intended. Trade theory tells that tariffs and quotas are equivalent only when markets are competitive. In practical terms, this boils down to how the TRQs are administered. Much has been written on this topic since 1995, notably on how several methods of administering the TRQs could result into monopolistic practices on the import side. The fact that equivalent TRQs have been preferred to full tariff cuts speaks itself of the advantages of managed trade that the TRQs provide, despite what trade theory says about the two being equivalent.

Finally, and also to stress a point made throughout the paper that the UR TRQs and the SnP TRQs are two different things and should be treated separately, the ongoing negotiations should also address the UR TRQs, notably whether these quotas should be further expanded on the basis of minimum access considerations, or these should be left where they are now. Some other elements of reform are listed in paragraph 35, under “other elements”, of the Framework, e.g. reduction or elimination of in-quota tariff rates and operationally effective improvements in tariff quota administration for existing tariff quotas. There have been very few concrete proposals so far on these aspects.

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Annex Table 1: Basic statistics and parameters used in the computation of the SnP TRQs

	Base Q	Base M	Base X	Base C	Tariff	Elasticities		
	000 tonnes				t0 (%)	els-S	els-D	M-demand
COUNTRY A								
Bovine meat	239	235	0.2	474	8	0.14	-0.40	-0.9
Sheepmeat	85	10	0.0	95	5	0.14	-0.60	-6.9
Pigmeat	3	0.00	0.0	3	80	0.20	-0.20	n.e.
Poultry	608	2	1	609	60	0.45	-0.60	-20.0
Milk, conc.	1	27	1	27	24	0.13	-0.10	-0.1
Butter	33	26	0.0	59	15	0.25	-0.30	-1.0
Cheese	143	9	2	149	22	0.11	-0.20	-5.2
Wheat	6564	4991	0.3	11555	5	0.45	-0.20	-1.1
Rice	3754	1	349	3406	20	0.38	-0.30	-20.0
Maize	6474	5162	2	11634	5	0.33	-0.20	-0.9
Sugar	1459	574	0.0	2033	20	0.45	-0.29	-2.2
Tea	1	72	1	72	35	0.14	-0.43	-0.4
Tobacco leaves	0.0	61	0.0	61	85	0.20	-0.50	-0.5
Oilseeds	255	293	11	537	16	0.18	-1.00	-2.0
Vegetable oils	112	611	0.4	723	19	0.18	-1.00	-1.2
COUNTRY B								
Bovine meat	351	101	0	452	50	0.15	-0.50	-2.7
Sheepmeat	36	1	0	36	50	0.15	-0.48	-20.0
Pigmeat	413	0.3	16	396	50	0.28	-0.50	-20.0
Poultry	728	16	2	743	43	0.28	-0.65	-20.0
Milk, conc.	25	100	25	100	210	0.10	-0.55	-0.6
Butter	0.05	12	0.05	12	83	0.07	-0.60	-0.6
Cheese	0.01	5	0.01	5	40	0.15	-0.50	-0.5
Wheat	2	4226	2	4226	27	0.83	-1.00	-1.0
Rice	30940	1330	1	32269	160	0.32	-0.38	-16.7
Maize	9677	1265	29	10913	40	0.35	-0.56	-7.5
Sugar	1575	1654	2	3228	95	0.45	-0.29	-1.0
Tea	159	3	91	71	53	0.14	-0.43	-20.0
Tobacco leaves	136	34	40	130	40	0.20	-0.50	-2.7
Oilseeds	5097	1451	49	6500	39	0.18	-0.85	-4.4
Vegetable oils	8610	24	4764	3870	40	0.18	-0.85	-20.0
COUNTRY C								
Bovine meat	25	0.09	0	25	50	0.08	-0.40	-20.0
Sheepmeat	0.2	1	0	1	50	0.08	-0.75	-0.9
Pigmeat	2	0.01	0	2	50	0.40	-0.60	-20.0
Poultry	63	2	0	65	50	0.40	-0.80	-20.0
Milk, conc.	9	44	0	53	50	0.12	-0.40	-0.5
Butter	0.4	1	0	2	50	0.07	-0.70	-0.9
Cheese	0.0	1	0	1	50	0.15	-0.50	-0.5
Wheat	0.0	889	0	889	50	0.83	-0.35	-0.4
Rice	1758	15	2	1771	50	0.58	-0.25	-20.0
Maize	31	123	0	154	50	0.34	-0.25	-0.4
Sugar	64	609	0	673	50	0.45	-0.29	-0.4
Tea	306	4	248	62	50	0.14	-0.43	-19.2
Tobacco leaves	5	6	2	9	50	0.20	-0.50	-1.0
Oilseeds	90	8	15	83	50	0.20	-0.90	-11.5
Vegetable oils	48	83	4	126	50	0.20	-0.90	-1.5
COUNTRY D								
Bovine meat	371	0.26	0	371	225	0.17	-0.40	-20.0
Sheepmeat	321	0.0	1	320	225	0.17	-0.45	-20.0
Pigmeat	0.32	0.00	0	0.315	225	0.40	-0.70	n.e.
Poultry	595	9	4	600	83	0.35	-0.65	-20.0
Milk, conc.	0.2	7	0	7	180	0.10	-0.40	-0.4
Butter	96	4	0	100	180	0.07	-0.55	-15.9
Cheese	57	3	1	59	139	0.15	-0.50	-12.7
Wheat	21000	966	2237	19730	154	0.35	-0.15	-10.7
Rice	375	327	5	697	45	0.37	-0.35	-1.2
Maize	2100	1286	4	3382	180	0.40	-0.25	-1.3
Sugar	2162	3	529	1635	135	0.45	-0.29	-20.0
Tea	160	5	6	159	168	0.14	-0.43	-19.0
Tobacco leaves	189	62	113	139	45	0.20	-0.50	-1.7
Oilseeds	948	952	2	1898	19	0.32	-0.85	-2.0
Vegetable oils	994	589	53	1530	28	0.32	-0.85	-2.7

Note: The notations are as follows: Q production; M import; X export; C consumption; els-S and els-D are domestic price elasticities of supply and demand and M-demand is elasticity of import demand.