Binding Overhang and Tariff-Cutting Formulas

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SUMMARY

Assessing the impact of WTO negotiations on actual protection is important for policy makers or analysts who want to measure their consequences on economic growth, welfare or poverty. This task is not a trivial activity and previous attempts, such as during the Uruguay Round, has led to many disillusions by overestimating delivered liberalisation.

Even though trade policies are complex and rely on several tools, the main source of difficulty is probably that any agreement would not cut directly applied protection, but instead bound duties. The difference is of paramount importance in order to assess the resulting consequence of any liberalisation agreement. Although consolidation is now almost complete in agriculture, this is far from being the case for non-agricultural products in many countries. The impact of a possible agreement on these unbound products is conditional to the specific treatment they are granted. This uncertainty does not exist for bound products, but here the impact of a given cut on applied duties depends on the gap between bound and MFN applied duties, adequately termed by Francois and Martin (2003) the "binding overhang". While various studies have already suggested that this is likely to alter substantially the impact of a given agreement on applied duties, no systematic, inclusive assessment has been carried out so far including agricultural products. In addition, even an assessment of the impact involved on MFN applied duties would still miss an important part of the story, given the widespread preferential agreements, which introduce a significant gap between MFN and preferential applied duties for a substantial part of world trade (assessed to 25% by The World Bank, 2004).

This paper presents an empirical work devoted to filling this gap, by putting together a combination of databases and a methodology allowing to assess systematically and exhaustively, for almost each WTO member country and for each of the 5,113 products of the six-digit level of the Harmonised System classification (hereafter, HS-6 level), the AVE of the binding overhang, and the impact on applied duties of any cut in bound protection. This work is the first one, to the best of our knowledge, to undertake such assessment while incorporating non-ad valorem tariffs (including TRQs) and accounting for all preferential agreements. It is based on the MAcMap-HS6 database (Bouët et al., 2004) for applied protection, and rely on an original work for the assessment of the AVE of bound protection, based on WTO's Consolidated Tariff Schedules (CTS –WTO, 2001a) and on national sources, with special emphasis put on reaching consistency with AVE applied duties.

The methodology in assessing the AVE of bound duties is fully described and follows the same rules that the MAcMap-HS6 database AVE computation. The strategy used to assess the impact of a given tariff-cutting assumption is also presented. The results from this work are illustrated in various ways. First, we present an assessment of the level and distribution of AVE bound tariffs, and of the binding overhang. The unevenness of binding overhang distribution is striking and large variations exist across categories of countries, and between agricultural and non-agricultural products. The average AVE binding overhang in

developed countries amounts to 3.6 percentage points in agricultural products, and to a mere 0.7% in non-agricultural products. The orders of magnitude are different for developing countries. This is especially the case in agriculture for the poorest countries, namely LDCs, India, Pakistan and non-LDC sub-Saharan African countries, where binding overhang exceeds 60 percentage points in average. This reflects the use of ceiling bindings in Uruguay Round's tariffication. For other developing countries, although not reaching similar magnitudes, the binding overhang is high in agricultural products, generally exceeding 20% in average, and approaching 50% in ASEAN countries and Turkey. The binding overhang is far lower in non-agricultural products, reaching 20 percentage points in average in the above-mentioned group of poorest countries, as well as in most Latin American countries. In both agricultural and non-agricultural products, China stands as a clear outlier, with the smallest binding overhang across all WTO members.

We also evaluate the magnitude of non-enforced WTO-commitments, and assess the impact on applied protection of various scenarios, among which the last scenarios with figures emanating from chairmen of negotiating committees, namely Harbinson's revised proposal on agriculture (WTO 2003a), and Girard's revised proposal for non-agricultural products (WTO, 2003b)

The Harbinson's proposal would result in a 54% cut in developed countries bound duties, as compared to 35% for developing countries and 37% for LDCs. However, this is far from being proportionately reflected in applied duties. In developed countries, the binding overhang is very weak outside EFTA, but trade preferences are widespread, and the corresponding duty rates are frequently left unchanged. This is both reflected in the initial gap between bound and applied duties, and in the lower absolute and proportional decrease in applied duties (-39%). The comparison with the case where the formula cuts directly applied rates (-52%) illustrates this difference.

Although developing countries are also engaged in preferential agreements, the binding overhang explains why the decrease in applied protection appears as rather marginal (3.5 points, less than 20% of the initial level). Applying the formula to cut directly MFN applied rates would entail almost twice as much liberalisation. In other words, half the liberalisation is absorbed in a reduced binding overhang. In Pakistan and Mercosur, applied protection actually remains virtually constant. China and Korea, in contrast, record a decrease of applied duties by approximately one quarter. In LDCs, the magnitude of the binding overhang leads to virtually unchanged applied duties.

The particularity of the Girard Proposal's tariff-cutting formula assessed for non-agricultural products is that it accounts for the average initial base rate of the country. Higher average protection in the country thus means, for a given initial rate, a lesser cut. Meanwhile, however, the formula is harmonising: for a given country, the higher the initial duty, the higher the proportional cut. Even though initial protection is already low, the cut is significant in particular in Australia, EFTA and Canada, and concerns primarily the textile and clothing sector, where tariff peaks a removed as a result of such a strongly non-linear formula. Event though preferential agreements introduce a gap between initial

applied and bound rates, the liberalisation is almost proportionately reflected in applied duties, which are also strongly liberalised.

In average, base rates are halved in developing countries (from 17.9% down to 8.6%), but Pakistan and many Sub-Saharan countries are exempted from liberalisation commitment due to their low initial scope of binding, inferior to 35%. For other countries, the rather high initial average base rate limits the commitments induced by the formula. In relative terms, the liberalising effect is strongest for those countries exhibiting strongly uneven initial protection pattern, such as Korea, ASEAN and the Maghreb countries. The impact on applied duties is far weaker, with an average liberalisation by approximately one third. This is largely explained by the extent of the binding overhang. However, the comparison with the outcome of applying the formula directly to MFN duties shows that the influence of the binding overhang is uneven.

The comparison with a proportional cut set by group of countries (developed, developing, LDCs) so as to deliver an equivalent average cut in bound duties, allows assessing the consequences of the formula's non-linearity. This would entail a lesser cut in countries with most uneven protection pattern, like Japan, ASEAN, India and Maghreb. Finally, we examine the sensitivity of the results with regards to the definition of base rates for unbound products.

ABSTRACT

Trade negotiations deal with possible cuts in bound duties, which differ substantially from applied preferential duties, and even from MFN applied duties. Based on WTO's Consolidated Tariff Schedules (CTS) database and on national sources, this paper proposes a systematic assessment of ad valorem-equivalent bound duties at the detailed product level, for almost all WTO members. Fully consistent with the assessment of applied protection provided in the MAcMap-HS6 database (Bouët et al., 2004), this work allows the full structure of protection –bound, MFN applied, preferential applied duties- to be accurately assessed. We are thus able to provide with the first ever worldwide assessment of the binding overhang, i.e. the gap between bound and applied MFN tariffs. We also assess the likely applied-protection impact of an agreement in the Doha Round, based on the Harbinson Proposal for agricultural products, and on the Girard Proposal for non-agricultural products. In all cases, we show the difference between bound and applied protection to be key in understanding both the structure of protection worldwide, and the possible impact of liberalisation scenario cutting bound duties, as uses to be the case in multilateral liberalisations.

BINDING OVERHANG AND TARIFF-CUTTING FORMULAS

Mohamed Hedi Bchir, Sébastien Jean & David Laborde [1]

1. INTRODUCTION

Devising the consequences of a multilateral liberalisation agreement is a hazardous exercise. This has been widely illustrated in the Uruguay Round, and in particular in the agreement on agriculture, which led to actual market access liberalisation way below what nominal average cut rates would have suggested. In the case of the Uruguay Round Agreement on Agriculture (URAA), "dirty tariffication" of non-tariff measures (see e.g. Ingco, 1996) and the method of allocation of tariff cuts across commodities (see e.g. Josling and Tangerman, 1994), were the main reasons for this gap. Although tariffication is now achieved and lessons have been drawn about the flaws of average cut criteria (Martin, 2004), the same kind of uncertainty could well surround the actual impact on applied protection of an agreement on market access liberalisation in the Doha Round. Tariff rate quotas (TRQs), although limited in number, are an important element of protection in agricultural products, and assessing the impact of their liberalisation is far from straightforward. Non-ad valorem tariffs are also widespread in agriculture, as well as in non-agricultural products for some countries (Thailand, Sri-Lanka and Switzerland in particular), and their ad valorem equivalents (AVEs) need to be calculated if one is to apply a non linear formula. Computing the AVE of non-ad valorem duties is also required in the (not infrequent) case where applied and bound tariffs differ in nature, for a given tariff line –like for instance, when a specific duty is bound by an ad valorem duty.

The main source of difficulty is probably that any agreement would not cut directly applied protection, but instead bound duties. The difference is of paramount importance when it comes to assessing the consequences resulting of any liberalisation agreement. Although consolidation is now almost complete in agriculture, this is far from being the case for non-agricultural products in many countries. The impact of a possible agreement on these unbound products is conditional to the specific treatment they are granted. This uncertainty does not exist for bound products, but here the impact of a given cut on applied duties depends on the gap between bound and MFN applied duties, adequately termed by Francois and Martin (2003) the "binding overhang". While various studies have already suggested that this is likely to alter substantially the impact of a given agreement on applied duties, no systematic, inclusive assessment has been carried out so far. In addition, even an assessment of the impact involved on MFN applied duties would still miss an important part of the story, given the widespread preferential agreements, which introduce a significant gap between MFN and preferential applied duties for a substantial part of world trade (assessed to 25% by The World Bank, 2004).

This paper presents an empirical work devoted to filling this gap. For almost each WTO member country and for each of the 5,113 products of the six-digit level of the Harmonised System classification (hereafter, HS-6 level), we assess the AVE of the binding overhang, and the impact on applied duties of cuts in bound protection. This work is the first one, to the best of our knowledge, to undertake such assessment while incorporating non-ad valorem tariffs (including TRQs) and accounting for all preferential agreements. It is based on the MAcMap-HS6 database (Bouët et al., 2004) for applied protection, and rely on an original work for the assessment of the AVE of bound protection, based on WTO's Consolidated Tariff Schedules (CTS –WTO, 2001a) and on national sources, with special emphasis put on reaching consistency with AVE applied duties.

Next section begins with a short literature review. It then spells out in some detail the methodology followed in assessing the AVE of bound duties, and in ensuring consistency with AVE applied duties. The method used to assess the impact of a given tariff-cutting assumption is also presented. The results from this work are illustrated in various ways in Section 3. We present an assessment of the level and distribution of AVE tariffs, and of the binding overhang. We also assess the impact on applied protection of various scenarios, among which the last scenarios with figures emanating from chairmen of negotiating committees, namely Harbinson's revised proposal on agriculture (WTO 2003a), and Girard's revised proposal for non-agricultural products (WTO, 2003b).

2. METHODOLOGICAL ISSUES WHEN ASSESSING BOUND DUTIES AND THE IMPACT OF TARIFF-CUTTING FORMULAS

2.1. Literature review

The concept of tariff binding is central to multilateral negotiations on market access, under the GATT and now under the WTO. Countries do not make commitments in terms of applied protection, but instead in terms of the ceiling above which they commit not to raise their applied duty. This has proved an efficient way to make commitments possible and to create a cumulative process of market access liberalisation. For exporters, tariff bindings represent in addition a cap to the tariff they are likely to face in a given market, and are thus an important signal in an uncertain world. More generally, as emphasised for instance by Francois and Martin (2004), tariff bindings are valuable in the restrictions they impose to the time-variability of applied duties. As such, the reduction of tariff bindings is worth in themselves.

Still, the immediate impact of a market access liberalisation agreement on world trade is related to its translation in terms of applied protection. Assessing such impact requires a detailed knowledge of the level of both applied and bound duties. While much effort has been devoted to measuring the level of applied protection (see e.g. Bouët et al., 2004, for a review), the AVE of bound duties, and most of all of the difference between bound and applied, have been less scrutinised. Bound tariffs are linked to commitments to the WTO. As such, their primary source is WTO notifications, put together under the CTS database (WTO, 2001a). This database includes commitments, with the corresponding date and duties (not expressed in a standardised way, however).

On industrial products, Bacchetta and Bora (2001, 2003) offer a very detailed and complete analysis of this database. No AVE are calculated, but this is not a strong limitation for industrial products, where non-ad valorem tariffs are limited to a small number of countries (Switzerland, Sri Lanka and Thailand being the "stand out cases"). Among important broad features illustrated by their work is the almost complete binding of industrial tariffs in developed countries, with a substantial share of products bound duty-free, notably as a result of sectoral initiatives in previous rounds. Most Latin American countries have also bound tariffs for all industrial products, although to a higher level. In contrast, the scope of binding is far more limited in Asia, where one third of the countries studied by Bacchetta and Bora (2003) had bound less than half their tariff lines. The same is true for Africa, where a significant number of countries have bound a very small share of their tariff lines (less than 10% for approximately one third among them), while others exhibit an almost complete scope of binding.

For agriculture, the URAA set the principle of binding tariffs for all products. Incomplete scope of binding is thus not much of an issue. While exceptions have been made in the agreement, they are progressively entering the general rule, like recently rice in Japan and Korea.

In all cases, however, the gap between bound and applied protection appears to be substantial, for a combination of reasons. A first one is "dirty tariffication" in the URAA, namely the conversion of non-tariff measures into tariffs, which was carried out in such a way that the bound tariffs calculated were in fact superior, in many cases, to protection actually applied before the agreement. Even applying the liberalisation commitments included in the agreement did not imply any liberalisation, in many cases (Hataway and Ingco, 1995; Ingco, 1996). The use of ceiling bindings, widespread in developing countries, for agricultural as well as non-agricultural products, is a second important reason. These ceilings were generally set somewhat arbitrarily, to a far higher level than applied tariffs.

However, few large-scale assessments of the magnitude of this "binding overhang" have been proposed so far. On agricultural products, the AMAD database[2] gathers and harmonises the information about MFN applied and (post-Uruguay Round) bound tariffs for a large number of countries. It includes ad valorem tariffs and an AVE of non-ad valorem duties (based on average, multilateral unit values for years 1995 to 1997). This is the main existing basis for large-scale analysis of the binding overhang, and of the impact of tariff-cutting formulas on applied protection. It has been used in particular by Walkenhorst and Dihel (2002) to provide with an assessment of "unused protection" in 1997 of agricultural products. Further large-scale empirical work has been carried out by the ERS-USDA, resulting in a database providing with an assessment of (post-Uruguay Round) bound and MFN applied duties at the HS6 level, for 120 countries. Based on AMAD and on WTO notifications for bound tariffs and on TRAINS for applied duties, it includes ad valorem tariffs and an AVE of non-ad valorem duties, computed according to AMAD's methodology (Wainio, 2004). This database has been used for instance by Martin

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[2] See www.amad.org.

and Wang (2004). Its main shortcomings are probably to compute simple averages, and to include tariff preferences only for the EU and the US.

For non-agricultural products, the main large-scale empirical work we are aware of is ITAS (see Fry et al., 2004), a combination of database and aggregation device, intended to measure the impact of liberalisation scenario on applied protection. Providing with harmonised information on bound and applied tariffs, this tool proves most useful to gain a better understanding of what is at stake in industrial products, in the main markets. Its main limitation is a limited country and sector coverage (19 countries, for non-agricultural products only). No AVEs are proposed for non-ad valorem tariffs, but this is not an important issue outside agriculture.

In sum, a number of studies have allowed the landscape of protection to be described in some detail. But it has not been possible, so far, to provide with an exhaustive and consistent assessment of the different types of tariffs, from bound down to preferential applied, and of the detailed outcome to be expected from various possible agreements, both for agricultural and non-agricultural products.

2.2. Calculating AVE bound tariffs

As already mentioned, the source data for bound tariffs are WTO's member country notifications, as reported under the CTS database. They include both the level of bound tariffs and the deadline for putting the corresponding commitments into practice. Our work takes advantage of a systematic (and, as far as possible, exhaustive) treatment of the information available in the CTS database, used in combination with WTO notifications, MAcMap-HS6, CEPII's BACI database on international trade (built as a result of an elaboration on UN's Comtrade database, see Gaulier and Zignago, 2004), and complemented using national sources as required.[3] In assessing the magnitude of bound protection, we also aim at measuring the magnitude of the binding overhang, and the way a cut in bound tariffs is likely to change applied tariffs. We therefore put special emphasis on reaching consistency with assessed AVE applied duties. This is why the methodology used in calculating and aggregating AVEs mimics, as far as possible, the one used in building MAcMap-HS6, described in detail in Bouët et al. (2004). This is also the reason why, starting from an information on bound tariffs given at the tariff line level, our objective has been to build a database of AVE bound tariffs at the HS-6 level. The HS-6 level is indeed the most detailed one in the Harmonised System, and the most detailed one for which trade data are available for a large number of countries.

The first step involves defining what consolidation means at the HS-6 level. When a country notifies its bound rates at the HS-6 level directly, as is frequently the case for developing countries, this is straightforward. When the notifications are made at a tariff line level including more detailed breakdown, the most common case by far is that, within a

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[3] We only make use of national sources when the information is missing in the CTS database, or when an inconsistency arises between bound and MFN tariffs as available to us.

given HS-6 product, all tariff lines are either bound or unbound. Such cases do not raise any problem either. Problematic cases correspond to cases where an HS-6 product includes several lines, of which only part appears as bound in the database. Given the number of possible sources of error, we then used the following rules. Firstly, if the product belongs to agriculture (in WTO's sense), then it is assumed to be bound, except for well-identified exceptions.[4] If the product does not belong to agriculture, we then check whether the classification used to notify bound tariffs is the same as the one used to apply protection. If the classifications differ (this is the case in several instance, where for instance bound tariffs are notified in HS-6 rev. 1, while applied protection is defined based on HS-6 rev. 2), it means that different definitions of tariff lines have been used by the country, making it difficult to identify with certainty whether some lines are unbound or not; in this case, as soon as some lines are bound under a given HS-6 product, and even though there is no certainty that all lines are bound, the product is assumed to be bound. When the classifications used to notify applied and bound protection are identical, in contrast, a product for which only part of underlying tariff lines are bound is considered as unbound.

For each HS-6 product where protection is considered as being consolidated, the AVE of non-ad valorem tariffs must then be calculated. This is done so as to maximise consistency with AVEs of applied tariffs computed in the MAcMap-HS6 database (see Bouët et al., 2004). As in MAcMap-HS6, the treatment of compound and mixed tariffs gives priority, as far as possible, to the ad valorem component, in order to minimise possible errors.

AVEs of applied, specific tariffs are computed in MAcMap so as to account for the different quality specialisation of exporter. Based on the differences in unit values of world-wide exports of the reference group the exporter belongs to, this results in five different unit values being taken into account, for each product. This is intended to reflect the trade restrictiveness of specific tariffs, but it is inconsistent with the WTO approach, and in particular with the most favoured nation principle. This is why, for bound duties, the AVE of specific tariffs is computed using world-wide unit values.

The aggregation method is the same as the one for applied tariffs in MAcMap-HS6. The HS-6 duty is first calculated as the simple average of tariff-line level tariffs, for each component (specific and ad valorem).[5] In order to minimise the endogeneity bias arising when computing trade-weighted averages, this weighting scheme is based on imports of reference groups, instead of imports by country. Five reference groups are considered, which are built as a result of a clustering analysis on PPP GDP per capita and openness (see Bouët et al., 2004 for details).

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[4] Recall that these rules only apply to cases where some tariff lines are bound and other are not, within the same HS-6 products. Exceptions made under the URAA generally do not belong to this category, since they concern HS-6 products as a whole.

[5] In the case where the product is considered as consolidated while not all tariff lines are bound, the base rate (i.e. twice the MFN, under the baseline assumption, see below) is used for unbound tariff lines.

As outlined above, our methodological choices intend to reach consistency between the bound tariffs computed here and the applied tariffs in MAcMap-HS6 database. The bound tariffs put together in our database are associated with a date, by which the notifying country commits to apply no more than this bound tariff. Since applied tariffs in MAcMap-HS6 are measured for 2001, they should be lower than bound duties for all products which enforcement deadline is not posterior to 2001. When this is not the case, both measures appear to be inconsistent, since the applied, MFN duty appears to be higher than the bound rate which is supposed to be in force. We then first check whether the classifications used to notify bound and applied protection are the same. If this is not the case, we assume that this difference in classification explains the difference. The AVE MFN duty is then retained as the most relevant one, and the AVE CTS duty is assumed to be equal to the MFN. When classifications do not differ, we assume the bound duty to be the most robust information, given the legal status of the CTS database. Applied duties are thus put in coherence with the level of bound duties: the AVE MFN duty is lowered to equal the bound duty and applied, preferential duties are lowered by the same percentage as the MFN duty.

2.3. Computing the impact of tariff cutting formulas

WTO negotiations deal with bound tariffs, while the concrete impact on trade flows (at least in the short run) stems from the resulting impact on applied duties. Hence the interest of describing accurately the effect in terms of applied protection of a given cut in bound duties. Doing so requires making assumptions.

For unbound products, the outcome of an agreement is unclear. Following the Girard proposal, we assume that these products are not excluded for liberalisation, but rather that the computation of the liberalised, bound tariff is made starting from a "base rate". The base rate is computed as twice the MFN applied rate, with a minimum of 5%. Sensitivity analysis to this assumption will be presented below. In what follows, we will call "base rate" the starting point of the negotiation, *i.e.* the bound rate when it exists, and the base rate as defined above otherwise. Note in addition that for newly-acceded countries, we take bound-rate accession commitments as base rates.

We assume the applied duty resulting from liberalisation to be equal to the minimum between the liberalised base rate and the initial applied rate: $Applied_{new} = MIN(Bound_{new}; Applied_{old})$. This is a widely-used assumption, but the initial applied rate is by no means the only possible counterfactual. Absent any liberalisation agreement, tariffs would not necessarily remain constant. In addition, given the constraint bound tariffs impose on applied tariffs, they might influence both the expected value and the expected variance of applied tariffs, even when the bound is superior to the applied rate (Francois and Martin, 2004). Another depart from this assumption is the case where a preferential rate is set as a percentage of the MFN rate, as is the case for instance in EU's Generalised System of Preferences (GSP). However, our simplified approach provides a useful, and widely adopted, rule of thumb.

The methodology used in calculating AVEs is the same as for applied protection, and consistency between both databases is checked. The only methodological difference lies in the calculation of AVEs. As pointed out above, AVE of applied, specific tariffs are computed so as to account for the different quality specialisations of exporters. Based on the median unit values of worldwide exports from the reference group the exporter belongs to, this results in five different unit values being taken into account, for each product. This is intended to reflect the trade restrictiveness of specific tariffs, but it is inconsistent with the WTO approach, and in particular with the most favoured nation principle. This is why, for bound duties, the AVE of specific tariffs are computed using worldwide unit values.[6] This intends to reflect the "institutional" AVE, likely to be taken into account in the WTO negotiations. In assessing the consequences of a liberalisation of bound duties on applied rates, we thus start by making all calculations using "institutional" AVEs (based on multilateral unit values), for applied as well as bound duties. This makes it possible to compute the percentage cut for each HS-6 product and each partner. This percentage cut is then applied to the initial, trade restrictiveness-related AVE applied tariffs (based on reference group unit values).

For TRQs, we assume that liberalisation does not modify inside-quota tariff rates (IQTRs), while outside-quota tariff rates (OQTRs) are treated like other applied tariffs. When a rent is initially assumed to be associated to a quota (because the quota is filled), we assume this to be still the case after liberalisation. The rent is re-calculated accordingly, using the new AVE OQTR value.

3. ILLUSTRATIVE RESULTS

The database described above is used in this Section to provide with an overview of the mean and distribution of AVE bound tariffs for virtually all WTO members. The magnitude of the binding overhang is described in detail. We then propose an assessment of the applied protection impact of some of the scenarios considered in the Doha Round negotiations, both for agricultural and non-agricultural products.

3.1. Overview of bound tariffs

Although the URAA resulted in an almost complete consolidation in agricultural products, this is far from being the case for other products. We document this in Graph 1, where the world distribution of the scope of binding in non-agricultural products is plotted across countries. The graph plots the proportion of WTO member countries (in %, on the x-axis) for which the scope of binding is inferior to y (in %). Three metrics are alternatively used to compute the scope of binding: the share in the number of products (curb "NbProd_Weighted"), the share in country's imports (curb "Import _Weighted"), the share in imports of the country's reference group[7] (curb "RefGroup_Weighted"). We use different

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[6] All unit values are computed as weighted medians, based on the period 2000-2002.

[7] Reference groups are constitued by coutries of the same level of econcomic development and trade openness. This concept is a key element of the MacMap's agregation method. See Bouet et ali, 2004.

metrics because the number of products is a simple but meaningless measure, while share in each country's imports are bound to be endogenous to protection. This is why we find it useful to use in addition the weighting scheme used for the sake of aggregation, based on imports of the reference group the importer belongs to (see Bouet et al., 2004). While imperfect, this measure allows the endogeneity bias to be minimised.

Graph 1 shows that approximately 45% of WTO members have consolidated all non-agricultural products, and that consolidation is almost complete (higher than 99% whatever the metrics) for around half WTO members. 37% of the countries have consolidated more than 90% of non-agricultural products, but this represents only 85% of their imports and of imports of their reference group. This illustrates the fact that for several countries, unbound products tend to be of above-average importance in terms of imports.

**Graph 1: Cumulative distribution of the scope of binding
in non-agricultural product across WTO member countries**

Source: Authors' calculations, based on WTO's CTS database and on member country notifications. See text for details.

Note: Each curb plots the proportion of WTO member countries (in %, on the x-axis) for which the scope of binding is inferior to y (in %). Each curb uses a different metric to compute the scope of binding: share in the number of products (curb "NbProd_Weighted"), share in the country's imports (curb "Import _Weighted"), share in the country's reference group imports (curb "RefGroup_Weighted").

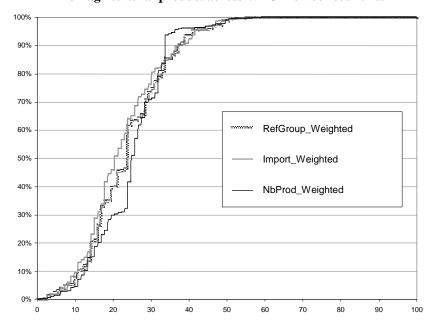The distribution of countries in terms of scope of binding is then widely spread, until almost zero. 20% of WTO member countries consolidated more than 30% of non-agricultural HS-6 products, but this represents 40% of imports of their reference group, and 50% of their imports. In contrast to the above, this shows that a number of countries with a low scope of binding have in fact bound products with a relative high import share.

In what follows, we will only refer to weights in imports of the reference group while characterising the distribution of tariffs, and of the binding overhang. This might be felt as disturbing by readers accustomed to thinking in terms of percentage of tariff lines, a metric frequently used at the WTO. We argue instead that thinking in terms of tariff lines is misleading, and should be avoided as far as possible, in spite of its attractive simplicity: tariff lines are country dependant and sometimes have poor any economic significance, and their use in trade negotiation is difficult to monitor. Trade restrictiveness is thus better though of based on a proxy of free-trade imports. Reference group imports are imperfect indicators, but they provide with a robust proxy of free-trade imports, thus paving the way for a sounder analysis of protection than numbers of tariff lines.

The broad picture of consolidation in non-agricultural products is described in Table 1. The main stylised facts are consistent with those pointed out for instance in Bacchetta and Bora (2001, 2003). Consolidation is almost complete in most developed countries, with a substantial share of products bound duty-free (representing 43% of imports of the reference group, in average). All products are also bound in Latin America, but here the use of ceiling bindings have resulted in rather high level of AVE bound tariffs, virtually never lower than 15%. China's commitments are far more stringent, with complete consolidation, accompanied by rather moderate levels of AVE bound duties. Contrariwise, least developed countries (LDCs) exhibit a low scope of binding, as other sub-Saharan African countries do. For most other developing countries (and for all those singled out in Table 1, except Pakistan), consolidation covers more than 60% of reference group's imports. Still, the bulk of bound duties exhibit an AVE higher than 15% (but lower than 50%), with the exception of East Asia. Sub-Saharan African LDCs is the only group of countries for which higher-than 50% AVE bound duties are set for a significant part of reference group's imports.

The picture is quite different for agricultural products (Table 2). Here the scope of binding is almost complete for all WTO member countries (Pakistan appears as the main exception, with 4.5% of reference group imports in unbound products). But duty-free consolidation only prevails for 22% of reference group imports in developed countries, and nearly zero in most developing countries (although Hong Kong and Singapore are outstanding exceptions). More generally, the AVE of bound duties is substantially higher, as witnessed by the significant share of products bound above 30% in developed countries, above 25% in Japan and in Europe. Even the share of products bound above 100% is not negligible in Canada, in Japan, and most of all in EFTA. For most developing countries, products bound above 30% account for the bulk of reference group imports; the share of products bound above 100% is generally higher than on tenth (with the notable exceptions of China and Mercosur), and around one half or more for countries which opted for ceiling bindings in applying the Marrakech agreement, in particular in Asia and Africa.

Table 1: Summary statistics on bound tariffs in <u>non-agricultural</u> products

	Reporter	Non-agricultural products					
		Share of bound products	Avg. applied MFN, bound products	Avg. applied MFN, unbound products	Share of products bound duty-free	Share of products with AVE bound in [15%;50%[	Share of products with AVE bound>50%
DvpedC		**98.9**	**3.2**	**4.2**	**41.9**	**3.0**	**0.1**
of which:	Australia	98.6	5.5	6.3	28.8	14.5	2.9
	Canada	95.5	3.2	3.0	39.8	5.3	0.0
	EFTA	96.1	4.4	0.1	33.2	4.8	0.3
	European Union	100.0	3.5	--	38.8	0.8	0.0
	Japan	95.7	1.6	0.2	74.2	0.9	0.0
	USA	100.0	2.6	--	42.8	2.7	0.0
DvpingC		**80.0**	**9.7**	**7.1**	**22.2**	**42.3**	**2.2**
of which:	ASEAN	72.6	4.9	8.1	28.2	34.8	0.7
	China	100.0	13.9	--	23.7	7.8	0.2
	India	74.8	28.0	35.8	10.1	83.9	1.3
	Korea	85.5	5.7	7.2	30.0	9.0	6.8
	Maghreb	89.4	24.9	21.2	0.0	79.8	6.5
	Mercosur	100.0	12.5	14.9	0.3	97.0	0.0
	Mexico	100.0	14.2	3.0	0.2	99.6	0.0
	OthSSA	9.7	11.4	18.5	0.5	33.3	6.0
	Pakistan	26.3	13.2	18.3	0.0	94.9	0.0
	SACU	95.5	7.7	2.9	12.4	40.9	0.8
	Turkey	63.4	3.8	5.6	19.0	35.1	0.8
LDCs		**30.9**	**9.5**	**12.1**	**0.1**	**56.9**	**23.5**
of which:	Bangladesh	7.6	5.1	17.2	0.0	78.1	1.8
	SSA_LDC	42.6	9.1	10.2	0.1	52.6	26.3
WTO		**92.9**	**4.9**	**7.0**	**36.7**	**13.4**	**0.7**

Source: Authors' calculations, based on WTO's CTS database, on member countries notifications, and on other sources. See text for details.

Table 2: Summary statistics on bound tariffs in <u>agricultural</u> products

	Reporter	Agricultural products					
		Share of bound products	Avg. applied MFN, bound products	Avg. applied MFN, unbound products	Share of products bound duty-free	Share of products with AVE bound in [30%;100%[	Share of products with AVE bound>100%
DvpedC		**100.0**	**24.0**	**40.1**	**22.1**	**15.8**	**5.8**
of which:	Australia	100.0	3.2	--	28.6	0.3	0.0
	Canada	100.0	29.2	--	30.1	6.6	9.9
	EFTA	100.0	82.9	--	10.9	23.5	35.8
	European Union	100.0	25.4	--	24.0	24.7	5.1
	Japan	100.0	47.0	--	22.9	15.1	10.1
	USA	100.0	8.5	--	20.5	6.7	0.4
DvpingC		**99.6**	**31.2**	**166.6**	**12.1**	**37.4**	**12.1**
of which:	ASEAN	99.4	12.3	22.8	4.8	21.5	10.0
	China	100.0	55.2	--	1.3	30.6	0.0
	India	100.0	59.7	35.0	0.0	54.6	43.7
	Korea	99.3	64.4	916.5	0.9	37.5	10.6
	Maghreb	99.4	34.5	30.2	0.0	47.4	13.1
	Mercosur	100.0	12.4	--	0.7	85.6	0.0
	Mexico	100.0	38.7	16.2	0.1	73.8	11.7
	OthSSA	99.8	33.9	16.2	0.0	31.6	57.1
	Pakistan	95.5	25.8	61.1	0.0	85.2	13.5
	SACU	99.7	20.7	0.4	9.5	67.8	11.1
	Turkey	100.0	39.3	--	0.0	28.4	40.1
LDCs		**99.8**	**15.5**	**9.3**	**0.0**	**34.8**	**42.2**
of which:	Bangladesh	99.6	20.9	5.9	0.0	5.7	85.6
	SSA_LDC	99.9	14.2	10.7	0.0	48.3	27.0
WTO		**99.8**	**26.6**	**159.3**	**18.2**	**23.9**	**8.4**

Source: Authors' calculations, based on WTO's CTS database, on member country notifications, and on other sources. See text for details.

Note: All shares are computed based on weights in imports of each country's reference group. The share of bound duty-free for developing countries is strongly pulled upward by Hong Kong (10% of the weights and all products bound duty free).

3.2. Overview of the binding overhang

Table 3 provides with the first ever overview of the binding overhang with virtually exhaustive coverage of WTO member countries, both for agricultural and non-agricultural products. The picture strongly differs across categories of countries, and between agricultural and non-agricultural products. The binding overhang is known to be very small across developed countries. This is confirmed in Table 3, where the AVE binding overhang for developed countries averages 3.6% in agricultural products, and 0.7% in non-agricultural products. This is small, but not negligible. Products with a non-zero binding overhang account in average for 15% of the reference group's imports in non-agricultural products, and for 20% in agricultural products. EFTA is the group of countries where the binding overhang is most significant, but it is also substantial in Australia and Canada, as well as for agricultural products in the EU.

Table 3: Summary statistics on the binding overhang (BO) in agricultural and non-agricultural products

reporter	Agricultural products				Non-agricultural products			
	AVE binding overhang	Share of products with zero BO	Share of products with BO in [15pp;50pp[	Share of products with BO>50pp	AVE binding overhang	Share of products with zero BO	Share of products with BO in [15pp;50pp[	Share of products with BO>50pp
DvpedC	**3.6**	**78.8**	**3.1**	**1.4**	**0.7**	**84.9**	**0.8**	**0.0**
of which: Australia	1.9	46.4	2.7	0.0	5.3	39.8	6.1	0.0
Canada	0.3	67.0	0.0	0.0	1.2	57.5	0.3	0.0
EFTA	27.1	58.9	10.9	17.5	2.0	36.3	0.9	0.0
European Union	2.5	74.9	5.6	0.6	0.1	92.9	0.0	0.0
Japan	0.9	89.9	0.6	0.1	0.2	92.8	0.0	0.0
USA	0.3	91.3	0.2	0.0	0.0	93.7	0.0	0.0
DvpingC	**29.2**	**41.7**	**22.9**	**15.0**	**10.3**	**35.1**	**25.3**	**1.8**
of which: ASEAN	43.6	15.7	21.6	12.1	9.7	25.8	18.1	1.1
China	0.1	99.1	0.0	0.0	0.2	96.7	0.3	0.0
India	76.0	33.7	3.4	60.5	12.5	29.4	26.5	2.0
Korea	16.9	41.9	18.2	3.8	7.7	40.6	4.3	5.8
Maghreb	34.5	27.9	18.7	20.0	14.6	18.1	48.4	0.4
Mercosur	24.8	1.1	83.3	0.0	19.0	2.7	69.8	0.0
Mexico	24.3	20.5	47.3	10.2	21.1	3.3	83.0	0.0
OthSSA	81.1	8.2	15.2	71.7	18.4	3.4	32.9	6.0
Pakistan	79.2	0.0	17.7	82.2	20.6	1.5	52.3	3.1
SACU	38.0	19.2	49.2	22.6	9.9	19.4	20.0	0.2
Turkey	47.8	11.5	35.7	29.1	7.7	14.6	11.2	0.7
LDCs	**87.1**	**2.0**	**22.4**	**64.6**	**19.3**	**4.5**	**32.5**	**7.0**
of which: Bangladesh	152.4	2.0	1.5	85.2	18.7	0.5	43.6	0.1
SSA_LDC	63.5	2.2	29.1	60.3	21.2	7.2	31.2	11.0
WTO	**13.6**	**64.6**	**10.5**	**6.9**	**3.7**	**69.4**	**8.4**	**0.6**

Source: Authors' calculations, based on WTO's CTS database, on member country notifications, and on other sources. See text for details.

Note: BO = AVE bound tariff – AVE MFN applied tariff, in percentage points; all shares expressed in %. "pp" stands for percentage points. For non-agricultural products, the binding overhang is computed using base rates for unbound products.

Not surprisingly, the orders of magnitude are different for developing countries. This is especially the case in agriculture for the poorest countries, namely LDCs, India, Pakistan and non-LDC sub-Saharan African countries, where the binding overhang exceeds 60 percentage points in average. This reflects the use of ceiling bindings in Uruguay Round's tariffication. For other developing countries, although not reaching similar orders of magnitude, the binding overhang is high in agricultural products, generally exceeding 20% in average, and approaching 50% in ASEAN countries and Turkey. It is particularly sriking that products with a binding overhang above 50 percentage points account for a significant share of reference group imports not only for the poorest countries, but also for ASEAN, Maghreb, Mexico, the South African Custom Union (SACU) and Turkey.

The binding overhang is far lower in non-agricultural products, reaching 20 percentage points in average in the above-mentioned group of poorest countries, as well as in most Latin American countries. Products with a binding overhang "peak" (over 50 percentage points) are in small proportion outside poorest countries, although the exception of Korea is significant (5.8% of reference group's imports).

Both in agricultural and in non-agricultural products, China stands as a clear outlier, with the smallest binding overhang across all WTO members. This confirms that the conditions imposed under the accession package are far more constraining for border protection than what comparable countries have committed to under the Marrakech agreement.

3.3.   The likely applied-protection impact of liberalisation in the Doha Round

The database put together allows the applied protection impact of liberalisation scenarios cutting bound tariffs to be assessed, taking into account into the relative level of AVE bound and preferential duties at the detailed product level. Although WTO member countries so far did not agree on concrete commitments in terms of market access, we take the Harbinson proposal for agricultural products (WTO, 2003a) and the Girard proposal on non-agricultural market access (WTO, 2003b) as being reasonable bases for studying the likely impact of an agreement in the Doha Round.

In both cases, the reference level of protection (termed "initial" in tables below) is based upon year 2001, but it incorporates in addition the impact of a pre-experiment, whereby commitments not yet enforced in 2001 are assumed to hold (including for newly-acceded members), the MFA is phased out, and EU's enlargement is taken into account.

The applied protection impact of the Harbinson proposal

Although formally rejected by some member countries as a basis for future negotiations, the Harbinson proposal is a useful reference as far as agricultural market access is concerned, since its design resulted from a long process of negotiation and discussion, and since it is still consistent with the content of July 2004 Framework Agreement, with a tiered formula involving more-than proportional cuts, and a special and differential treatment (SDT) for developing countries.

For developed countries, the Harbinson proposal involves reductions of 40 percent in tariffs under 15 percent, 50 percent in tariffs between 15 and 90 percent, and 60 percent for tariffs above 90 percent. In developing countries, there are four different tiers, with reductions of 25 percent for tariffs below 20 percent, reductions of 30 percent for tariffs between 20 and 60 percent, reductions of 35 percent for tariffs between 60 percent and 120 percent, and reductions of 40 percent in tariffs above 120 percent (WTO, 2003a).

Such a proposal would result in a 54% cut in developed countries bound duties, as compared to 35% for developing countries and 37% for LDCs. However, this is far from being proportionately reflected in applied duties (Table 4). Scenario (g), where the tariff-cutting formula directly cuts applied preferential duties, and scenario (h), where it cuts MFN applied duties, allow the reason for this difference to be better understood. In developed countries, the binding overhang is very weak outside EFTA, but trade preferences are widespread, and the corresponding duty rates are frequently left unchanged. This is both reflected in the initial gap between bound and applied duties, and in the lower absolute and proportional decrease in applied duties (-39%). The comparison with the case where the formula cuts directly applied rates (-52%) illustrates this difference.

**Table 4: Impact of the Harbinson Proposal on protection in agricultural products
(AVE duty, %)**

		Base rates			Applied rates					
		Initial (a)	Final (b)	Eqvt prop. cut (c)	Initial (d)	Final (e)	Prop. cut (f)	Cutting applied (g)	Cutting MFN (h)	Alternative base rates (i)
DvpedC		**27.0**	**12.4**	**12.4**	**16.6**	**10.1**	**10.2**	**7.9**	**9.7**	**10.1**
of which	Australia	5.1	2.9	2.4	2.7	1.8	1.6	1.5	1.5	1.8
	Canada	29.5	12.9	13.5	15.0	10.9	11.5	6.8	10.8	10.9
	EFTA	109.9	45.8	50.6	50.7	35.1	38.1	22.0	30.5	35.1
	EU-25	28.1	13.3	12.9	19.1	10.8	10.6	9.2	10.5	10.8
	Japan	47.7	20.8	22.0	34.9	19.7	20.7	16.0	19.4	19.7
	USA	8.8	4.7	4.0	5.1	3.5	3.1	2.8	3.5	3.5
DvpingC		**52.9**	**34.5**	**34.5**	**19.8**	**16.3**	**16.1**	**13.4**	**13.7**	**16.2**
of which	ASEAN	54.0	35.4	35.5	10.1	8.2	8.0	7.0	7.1	8.2
	China	25.8	17.7	16.6	11.0	8.3	7.5	8.0	8.3	8.3
	India	132.7	82.4	85.1	56.6	48.6	48.1	38.0	38.0	48.6
	Korea	67.0	45.5	45.3	50.9	38.2	38.5	32.7	33.5	37.6
	Maghreb	66.0	46.3	45.9	29.9	24.1	23.7	20.1	20.4	24.0
	Mercosur	37.2	26.1	23.8	12.4	12.3	12.2	9.1	9.1	12.3
	Mexico	59.4	39.0	38.1	25.7	20.4	20.4	17.2	17.9	20.4
	OthSSA	114.8	70.6	73.6	33.4	30.6	31.0	22.5	22.5	30.6
	Pakistan	106.6	68.2	68.4	27.7	27.7	27.7	19.4	19.4	27.5
	ROW	35.0	21.8	21.7	9.4	8.5	8.5	6.4	6.5	8.5
	SACU	57.6	37.9	37.0	18.6	16.5	16.3	13.0	13.3	16.5
	Turkey	86.6	53.9	55.6	37.5	31.2	31.8	24.4	24.7	31.2
LDCs		**102.6**	**64.4**	**64.4**	**15.2**	**15.1**	**15.0**	**11.0**	**11.0**	**15.1**
of which	Bangladesh	173.2	104.4	108.6	20.8	20.6	20.5	14.8	14.8	20.6
	SSA_LDC	77.6	50.4	48.7	13.7	13.6	13.5	10.0	10.0	13.6
WTO		**37.3**	**21.1**	**21.1**	**17.8**	**12.5**	**12.4**	**10.0**	**11.2**	**12.4**

Source: Authors' calculations, based on WTO's CTS database, on member country notifications, and on other sources. See text for details.

Note: Columns (b) and (e) refer to the application of the Harbinson proposal. (c) and (f) refer to a proportional cut computed, for each of the country groups (developed, developing, LDCs), so as to deliver the same average cut in bound rate as the Harbinson Proposal. (g) results from applying Harbinson's tariff-cutting formula directly to applied preferential rates, (h) results from its application to MFN applied rates.

Although developing countries are also engaged in preferential agreements, the binding overhang explains why the decrease in applied protection appears as rather marginal (3.5 points, less than 20% of the initial level). Applying the formula to cut directly MFN applied rates would entail almost twice as much liberalisation. In other words, half the liberalisation is absorbed in a reduced binding overhang. In Pakistan and Mercosur, applied protection actually remains virtually constant. China and Korea, in contrast, record a decrease in applied duties by approximately one quarter.

In LDCs, the magnitude of the binding overhang leads to virtually unchanged applied duties, event though the decrease in bound duties is large in absolute terms, most of all in Bangladesh. Noteworthily, however, the level of their applied protection does not appear very high in average after liberalisation takes place, by international standards. And their binding overhang remains very large.

Lastly, we examine whether the non-linearity of the tariff-cutting formula has differentiated consequences across countries, in terms of average applied protection. This is done by comparing the Harbinson proposal with a proportional cut resulting in the same lowering of average bound duties, separately for the three groups of countries considered, namely developed countries, developing countries, and LDCs. No large difference is found. A proportional cut would lead to lesser cuts in Canada, EFTA and Japan, reflecting the widespread tariff peaks existing in these countries. In developing countries, the difference is rarely significant, as a result of the lesser unevenness of protection across products. Korea is the country where the difference is most noticeable, but even in this case it remains small. A non-linear formula by construction has a higher lowering impact on the variance of duties across products, but its average impact does not turn out to be significantly differentiated across countries, which a priori should make it more easily acceptable.

The applied protection impact of the Girard proposal

In non-agricultural market access, the revised Girard Proposal (WTO, 2003b) remains a natural reference for our purpose, as it is the last proposition to date not emanating from a given member country, while including concrete modalities. The corresponding tariff-cutting formula is defined as:

$$T_1 = \frac{B \times t_a \times T_0}{B \times t_a + T_0}$$

Where T_0 and T_1 refer respectively to the initial and final base duty. *B* is a coefficient common to all countries, and t_a is the simple average of *ad valorem* equivalent base rates across non-agricultural products. "Base rates" are defined as bound rates or, for unbounded duties, as twice the MFN applied rate (with a minimum of 5%). For initially unbound duties, this formula thus entails both binding protection and lowering the level of the binding. This formula is consistent with July 2004 Framework Agreement.[8] However, in accordance with the latter (WTO, 2004, Annex B, paragraphs 6 and 9), we assume in addition that countries with binding coverage of non-agricultural tariff lines below 35% are

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[8] The Agreement also allows developing countries to benefit from a special and differential treatment, by defining a list of products for which lesser commitments will be made. This clause is not taken into account here.

not required to liberalise their market access but will bind all their tariffs under the constraint that their new average base rate will not exceed 27.5%.[9]

The particularity of this tariff-cutting formula is that the formula applied to a country depends on its average initial base rate. Higher average protection thus means, for a given initial rate, a lesser cut. Meanwhile, however, the formula is harmonising: for a given country, the higher the initial duty, the higher the proportional cut. For a coefficient B=1, this formula entails stronger proportional cuts for developed countries, where the resulting average base rate is as low as 1.2% (Table 5). Even though initial protection is already low, the cut is significant in particular in Australia, EFTA and Canada, and concerns primarily the textile and clothing sector (although the MFA phasing out is already accounting for in the pre-experiment), where tariff peaks are removed as a result of such a strongly non-linear formula. Event though preferential agreements introduce a gap between initial applied and bound rates, the liberalisation is almost proportionately reflected in applied duties, which are also strongly liberalised.

In average, base rates are halved in developing countries (from 17.9% down to 8.6%), but Pakistan and many Sub-Saharan countries are exempted from liberalisation commitment due to their low initial scope of binding, inferior to 35%. For other countries, the rather high initial average base rate limits the commitments induced by the formula. In relative terms, the liberalising effect is strongest for those countries exhibiting strongly uneven initial protection pattern, such as Korea, ASEAN and the Maghreb countries (Morocco and Tunisia). The impact on applied duties is far weaker, with an average liberalisation by approximately one third, or 2.2 percentage points. Except for China (where bindings liberalisation is almost fully transmitted to applied tariffs), this is largely explained by the extent of the binding overhang. However, the comparison with the outcome of applying the formula directly to MFN duties shows that the influence of the binding overhang is uneven. It is especially large in Mercosur, where cutting MFN would lead to a 4.2 percentage points decrease in average protection, instead of 1.3 when cutting bound rates, but it is also sensitive in Mexico (1.1 points instead of 3.0), in Korea (1.3 points instead of 2.3) and in Maghreb countries (7 points instead of 9). Notwithstanding this lesser relative liberalisation, applied tariffs are more liberalised in absolute terms than in developed countries, as is logical given initial levels. The cut in applied tariffs reaches almost ten points in India, more than seven in Maghreb, and almost four points in China.

Applied protection in LDCs is hardly changed by the Girard proposal. Bangladesh and a number of Sub-Saharan LDCs are exempted from any liberalisation commitment due to their low scope of binding. For remaining countries, the large initial binding overhang absorbs the substantive cut recorded on bound duties.

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[9] The Framework Agreement also states that LDCs should only be required to increase their level of binding commitments, without making any liberalisation commitment. We did not take this condition into account here, since it would not add any information, to the extent that the countries concerned are straightforwardly identified.

Table 5: Impact of the Girard Proposal on protection in non-agricultural products (AVE duty, %)

		Base rates			Applied rates					
		Initial (a)	Final (b)	Eqvt prop. cut (c)	Initial (d)	Final (e)	Prop. cut (f)	Cutting applied (g)	Cutting MFN (h)	Alternative base rates (i)
DvpedC		**3.4**	**1.2**	**1.2**	**2.2**	**0.9**	**0.9**	**0.8**	**0.9**	**0.9**
of which	Australia	11.1	4.0	3.9	5.4	3.2	3.5	2.6	2.6	3.1
	Canada	4.3	1.7	1.5	2.6	1.2	1.1	1.1	1.1	1.2
	EFTA	6.2	1.5	2.3	1.1	0.4	0.6	0.3	0.3	0.4
	EU-25	3.4	1.2	1.2	2.4	0.9	0.9	0.9	0.9	0.9
	Japan	1.7	0.5	0.6	1.3	0.4	0.5	0.3	0.4	0.4
	USA	2.5	0.9	0.9	2.1	0.8	0.8	0.8	0.8	0.8
DvpingC		**17.9**	**8.6**	**8.6**	**7.1**	**4.9**	**5.4**	**4.1**	**4.1**	**4.9**
of which	ASEAN	15.4	6.0	7.4	5.6	3.1	4.6	2.5	2.5	3.0
	China	7.2	3.3	3.4	7.0	3.3	3.4	3.3	3.3	3.3
	India	41.1	19.2	19.7	28.5	18.7	19.4	16.1	16.1	18.1
	Korea	13.1	4.2	6.3	5.4	4.1	4.3	3.1	3.1	4.0
	Maghreb	36.4	16.4	17.8	19.1	12.1	14.2	9.9	10.1	11.8
	Mercosur	31.5	15.5	15.1	12.5	11.1	10.9	8.3	8.3	11.1
	Mexico	35.2	17.4	16.9	8.9	7.8	7.7	5.9	5.9	7.8
	OthSSA	23.5	23.3	23.3	17.1	16.9	16.9	16.9	16.9	16.9
	Pakistan	27.5	27.5	27.5	16.9	16.9	16.9	16.9	16.9	16.9
	ROW	14.3	7.8	7.7	3.0	2.7	2.7	2.2	2.2	2.7
	SACU	17.3	7.2	8.3	7.4	4.1	5.2	3.4	3.4	4.1
	Turkey	11.7	5.6	5.6	2.8	2.2	2.6	1.7	1.7	2.1
LDCs		**27.2**	**21.5**	**21.5**	**11.2**	**11.0**	**11.2**	**10.6**	**10.6**	**10.9**
of which	Bangladesh	24.4	24.4	24.4	16.3	16.3	16.3	16.3	16.3	16.3
	SSA_LDC	30.2	21.8	26.7	9.6	9.4	9.5	9.0	9.0	9.4
WTO		**8.0**	**3.6**	**3.6**	**3.8**	**2.2**	**2.4**	**1.9**	**1.9**	**2.2**

Source: Authors' calculations, based on WTO's CTS database, on member country notifications, and on other sources. See text for details.

Note: Columns (b) and (e) refer to the application of the Girard formula with coefficient B=1. (c) and (f) refer to a proportional cut computed, for each of the country groups (developed, developing, LDCs), so as to deliver the same average cut in bound rate as the Girard Proposal. (g) results from applying Girard's tariff-cutting formula directly to applied preferential rates, (h) results from its application to MFN applied rates. (i) corresponds to the Girard proposal where base rates are defined, for unbound products, as 1.5 times MFN, instead of twice.

The comparison with a proportional cut set by group of countries (developed, developing, LDCs) so as to deliver an equivalent average cut in bound duties, allows assessing the consequences of the formula's non-linearity. This would entail a lesser cut in countries with most uneven protection pattern, like Japan, ASEAN, India and Maghreb. However, it does not make a large difference in terms of countrywide average protection levels, whether bound or applied.

Finally, we examine the sensitivity of the results with regards to the definition of base rates for unbound products. While the Girard proposal uses twice the MFN, column (i) reports the results using 1.5 times the MFN rate. We do not find this different treatment to make a sizeable difference in average, although resulting applied protection is slightly lesser in India and Maghreb.

4. CONCLUDING REMARKS

Even though the Uruguay Round arguably brought some simplification, tariff protection remains complex. Protection instruments are varied and protection is defined at a very detailed level through bound levels, subject to negotiation in the WTO, and through applied MFN duties, while actual protection corresponds in practice to a third value, namely preferential applied duties. Our empirical work aims to track as closely as possible these different tariff concepts at the detailed level, in order to allow an accurate assessment of the actual impact of liberalisation agreements to be delivered.

The illustrative results presented here not only confirm the importance and unevenness of the binding overhang. They also show that taking into account the relative level of bound and applied duties is indispensable if an accurate assessment of the true impact of liberalisation scenarios is to be reached. For developing countries, in particular, working directly with MFN applied rates does not provide with an acceptable proxy. Even though lowered bound duties are beneficial by themselves, this means that the market access gains from a possible agreement in the Doha Round are significantly overstated as soon as the difference between bound and applied tariffs is not accounted for. Our work thus paves the way for better informed assessments, in particular insofar as it is well-suited to be used as a basis for computable general equilibrium models assessments. As a matter of fact, our data has already been used by Bouët et al. (2005), by Bchir et al. (2005) and by Laborde (2005) to assess multilateral liberalisation.

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